HIV & Hepatitis C Update: Pregnancy and Postpartum

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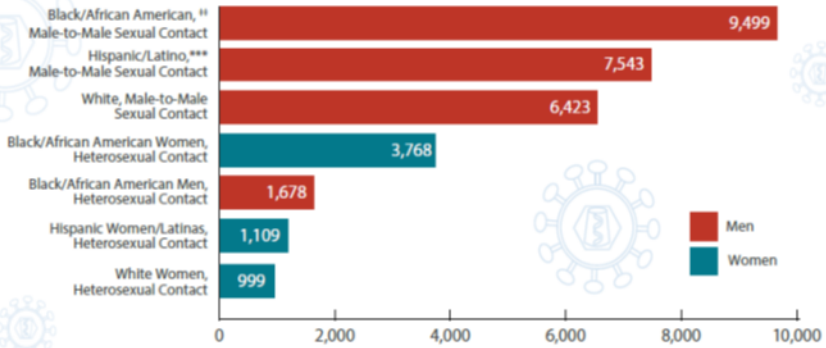
HIV in the United States and Dependent Areas

OF THE 37,832 NEW HIV DIAGNOSES IN THE US AND DEPENDENT AREAS* IN 2018:

- 69% WERE AMONG GAY AND BISEXUAL MEN†‡
- 24% WERE AMONG HETEROSEXUALS**
- 7% WERE AMONG PEOPLE WHO INJECT DRUGS (PWID)††

New HIV Diagnoses in the US and Dependent Areas for the Most-Affected Subpopulations, 2018



From 2010 to 2017, HIV diagnoses decreased 11% overall.††† But trends varied for different groups of people:

- Gay and bisexual men:† **remained stable**
- Heterosexuals:** **down 25%**
- People who inject drugs:†† **down 29%**

* American Samoa, Guam, the Northern Mariana Islands, Puerto Rico, the Republic of Palau, and the US Virgin Islands.
† Includes infections attributed to male-to-male sexual contact *and* injection drug use (men who reported both risk factors).
‡ This fact sheet uses the term *gay* and *bisexual men* to represent gay, bisexual, and other men who have sex with men.
** Does not include heterosexuals who reported injection drug use.
†† Does not include infections attributed to male-to-male sexual contact *and* injection drug use (men who reported both risk factors).
§§ *Black* refers to people having origins in any of the black racial groups of Africa, including immigrants from the Caribbean, and South and Latin America. *African American* is a term often used for Americans of African descent with ancestry in North America. Individuals may self-identify as either, both, or choose another identity altogether.
*** Hispanics/Latinos can be of any race.
††† In 50 states and the District of Columbia.

National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention
Division of HIV/AIDS Prevention
CDC

Around **1.1 million people** are living with HIV in the US.††† People with HIV need to know their HIV status so they can take medicine to treat HIV. Taking HIV medicine as prescribed can make the level of virus in their body very low (called viral suppression) or even undetectable.

AT THE END OF 2016, AN ESTIMATED **1,140,400** PEOPLE HAD HIV.†††

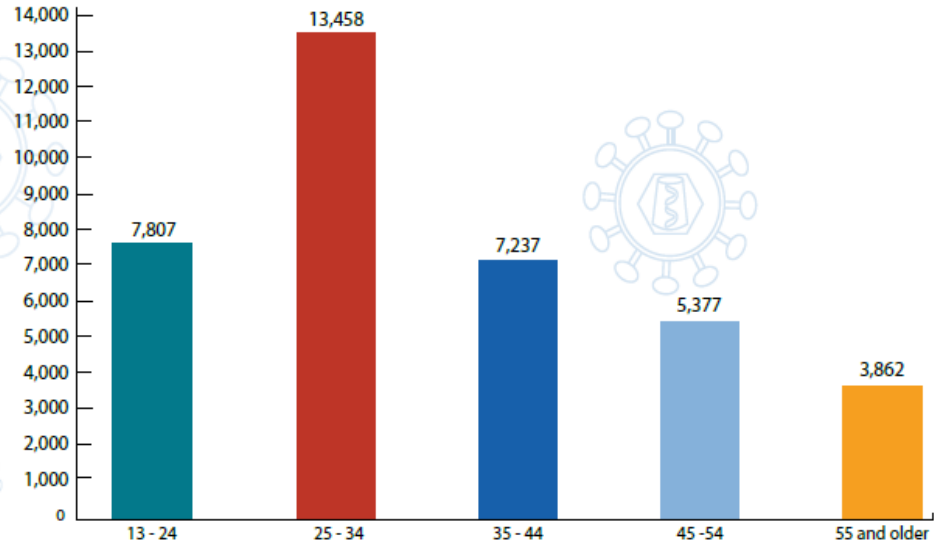
6 in 7 KNEW THEY HAD THE VIRUS.

For every 100 people with HIV in 2016:†††

- 64 received some HIV care
- 49 were retained in care
- 53 were virally suppressed

A person with HIV who takes HIV medicine as prescribed and gets and stays virally suppressed or undetectable can stay healthy and has effectively no risk of sexually transmitting HIV to HIV-negative partners.

New HIV Diagnoses in the US and Dependent Areas by Age, 2018

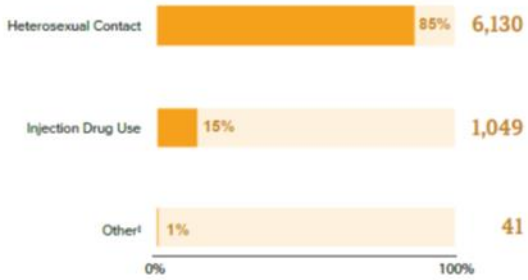


March 2020

HIV and Women

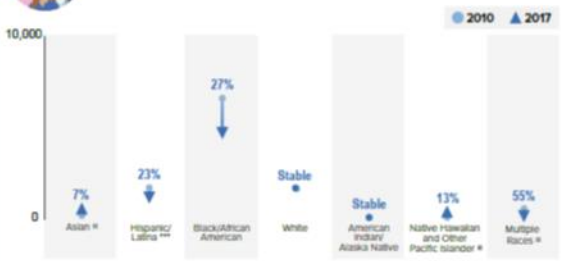
19% Of the **37,832 NEW HIV DIAGNOSES** in the US and dependent areas* in 2018, 19% were among women.†

Most of the new HIV diagnoses among women were attributed to heterosexual contact.



HIV diagnoses declined 23% among women overall from 2010 to 2017. ** Although trends varied for different groups of women, HIV diagnoses declined for groups most affected by HIV, including black/African American†† women and women aged 25 to 34.

Trends by Race and Ethnicity



Trends by Age

* American Samoa, Guam, the Northern Mariana Islands, Puerto Rico, the Republic of Palau, and the US Virgin Islands.
† Adult and adolescent women aged 13 and older.
‡ Includes hemophilia, blood transfusion, perinatal exposure, and risk factors not reported or not identified.
** In 50 states and the District of Columbia.
†† *Black* refers to people having origins in any of the black racial groups of Africa. *African American* is a term often used for Americans of African descent with ancestry in North America.
‡‡ Changes in subpopulations with fewer HIV diagnoses can lead to a large percentage increase or decrease.
*** Hispanic women/Latinas can be of any race.

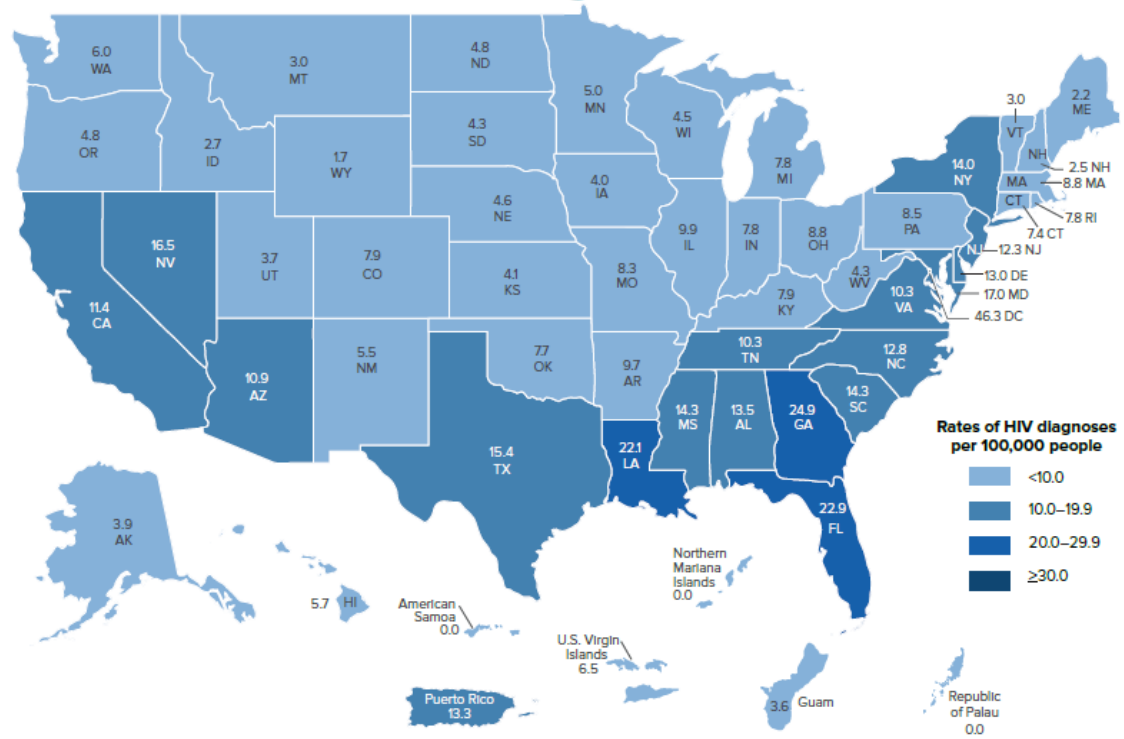
National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention
Division of HIV/AIDS Prevention

November 2018

HIV in the United States by Region

Of the 38,739 new HIV diagnoses in the US* in 2017,
19,968 (52%) were in the South.

Rates of New HIV Diagnoses in the US, 2017



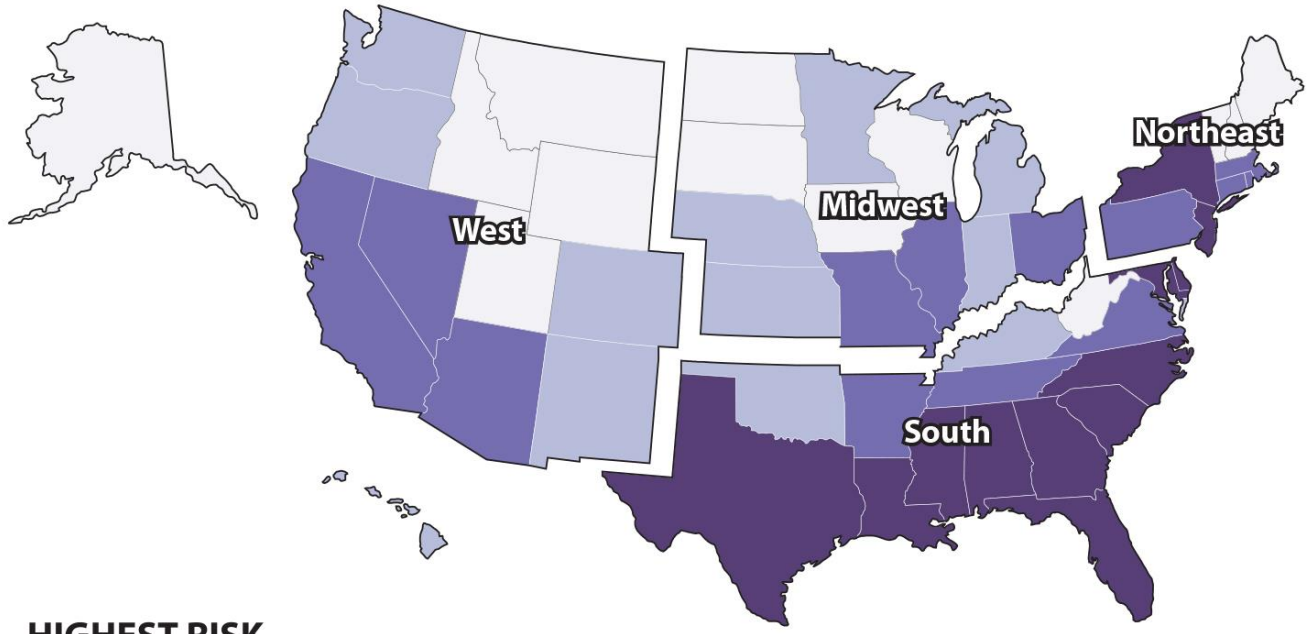
Rates (per 100,000 people) of people in the US living with diagnosed HIV in 2016:

US Total 308.3

- Northeast 418.8
- Midwest 174.5
- West 253.7
- US dependent areas 459.2
- South 361.3

46% of all adults and adolescents with HIV in the US† live in the South.

Lifetime Risk of HIV Diagnosis by State

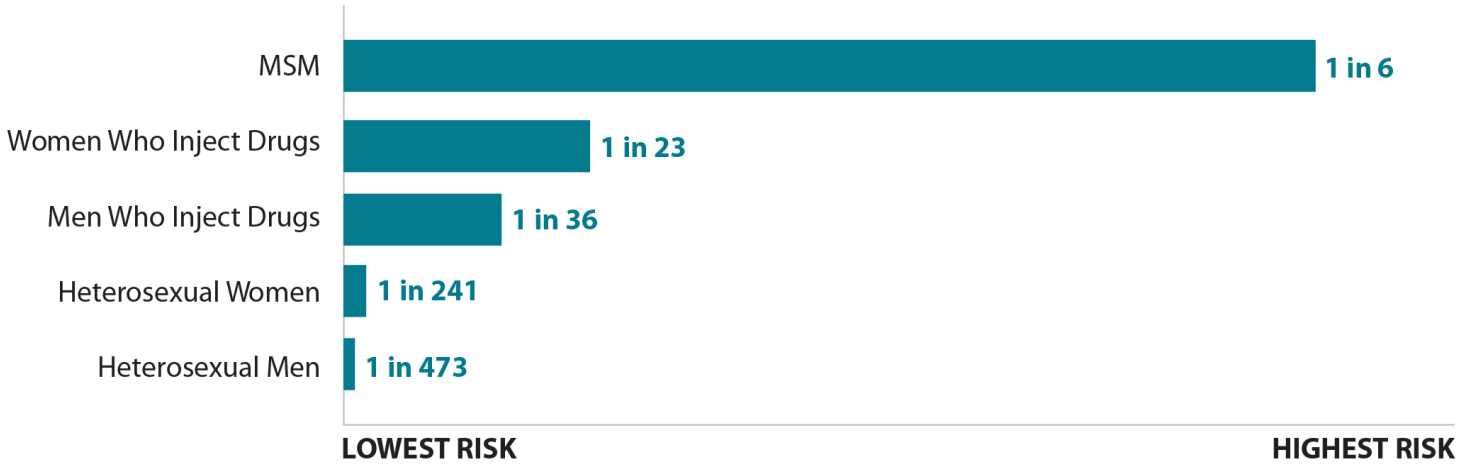


HIGHEST RISK **LOWEST RISK**

State	One in "n"	State	One in "n"	State	One in "n"	State	One in "n"
District of Columbia	13	Nevada	98	Michigan	167	West Virginia	302
Maryland	49	Illinois	101	Oklahoma	168	Wisconsin	307
Georgia	51	California	102	Kentucky	173	Iowa	342
Florida	54	Tennessee	103	Indiana	183	Utah	366
Louisiana	56	Pennsylvania	115	Washington	185	Maine	373
New York	69	Virginia	115	Colorado	191	Alaska	384
Texas	81	Massachusetts	121	New Mexico	196	South Dakota	402
New Jersey	84	Arizona	138	Hawaii	202	New Hampshire	411
Mississippi	85	Connecticut	139	Oregon	214	Wyoming	481
South Carolina	86	Rhode Island	143	Minnesota	216	Vermont	527
North Carolina	93	Ohio	150	Kansas	262	Idaho	547
Delaware	96	Missouri	155	Nebraska	264	Montana	578
Alabama	97	Arkansas	159			North Dakota	670

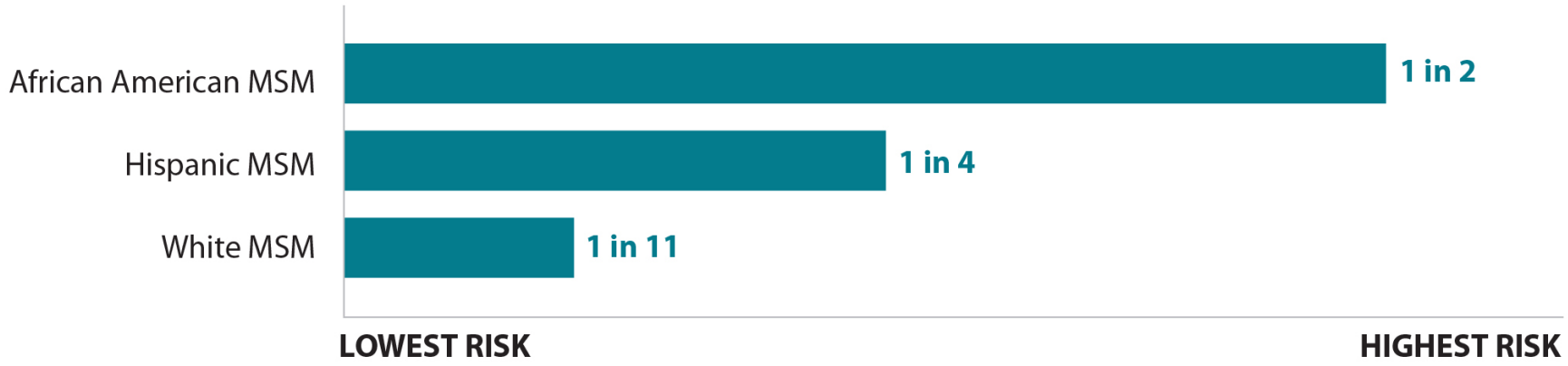
Source: Centers for Disease Control and Prevention

Lifetime Risk of HIV Diagnosis by Transmission Group



Source: Centers for Disease Control and Prevention

Lifetime Risk of HIV Diagnosis among MSM by Race/Ethnicity



Source: Centers for Disease Control and Prevention

amfAR
MAKING AIDS HISTORY
The Foundation for AIDS Research

February 2015
ISSUE BRIEF

HIV and the Black Community: Do #Black(Gay)Lives Matter?

"The AIDS response in the United States is failing MSM [men who have sex with men], particularly black MSM…. focus should be on the populations most vulnerable to HIV and should target interventions that are most useful and sustainable."

— Dr. Anthony Fauci, Director, National Institute of Allergy and Infectious Diseases, NIH, *JAMA*, January 27, 2015

Figure 2. Black gay men are only 0.2% of the total U.S. population, but one in four new HIV infections nationally.

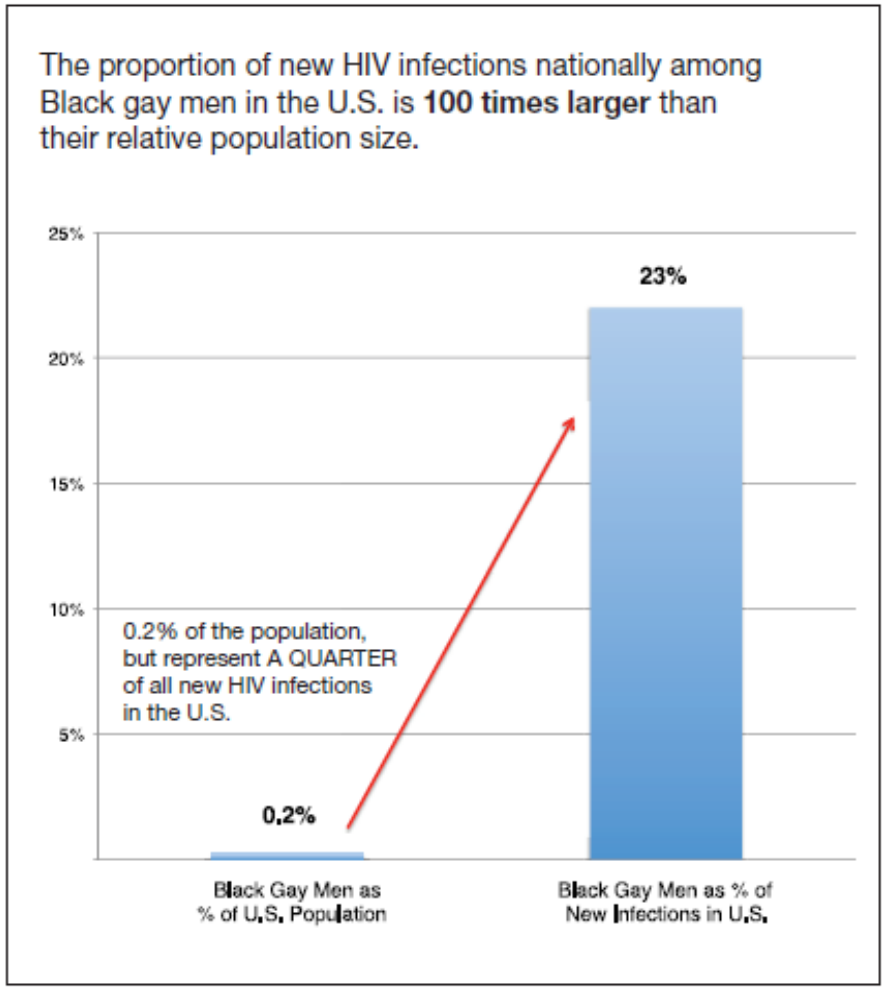


Figure 3. Black gay men are only 1.4% of the Black population, but they account for one in two new HIV infections among Black Americans each year.

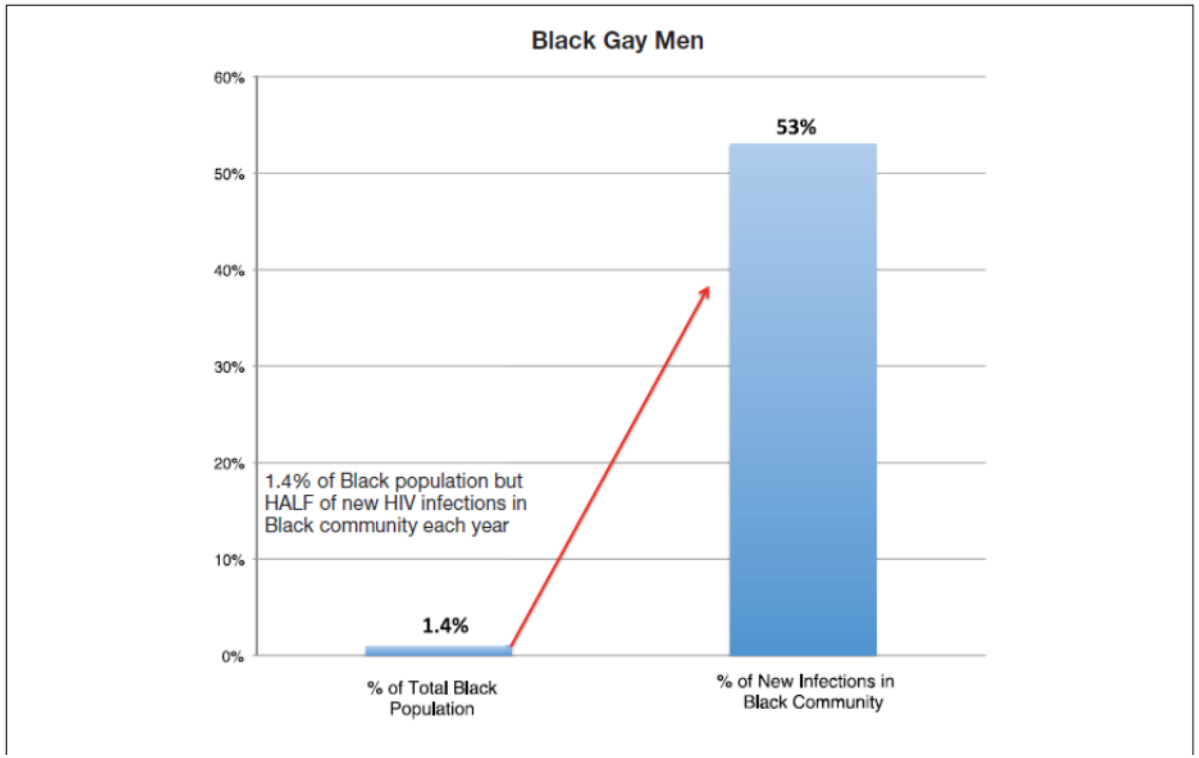
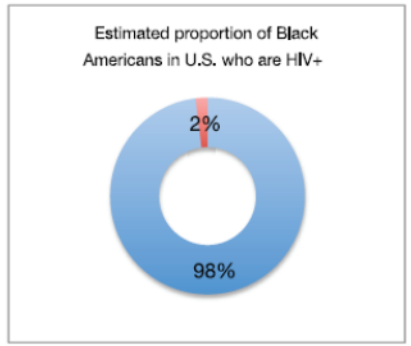
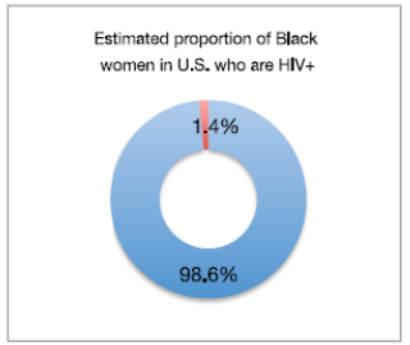


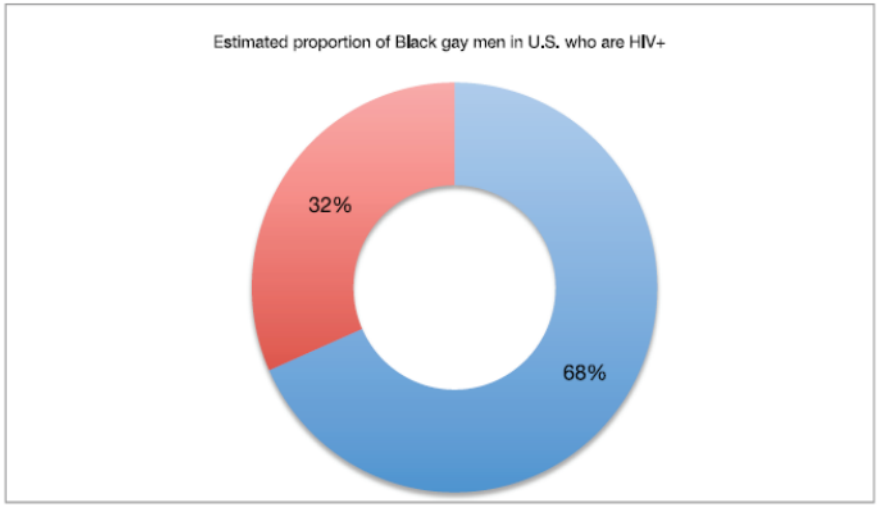
Figure 4. The vast majority of Black Americans and Black women *do not* have HIV. One in three Black gay men do.

Thankfully, the vast majority of African Americans overall (98%) and African American women (98.6%) are HIV negative. However, among Black gay men, far fewer (68%) are HIV negative and ONE THIRD are HIV positive.

The Centers for Disease Control and Prevention estimates that one third of all Black gay men in major U.S. cities are HIV-positive. HIV has become a fact of life for increasing numbers of Black gay men throughout their lifespan. For example, if one followed a group of Black gay men from age 20 to 40, one in four would be HIV-positive by age 25, rising to 59% of the same group contracting HIV by age 40.[20]



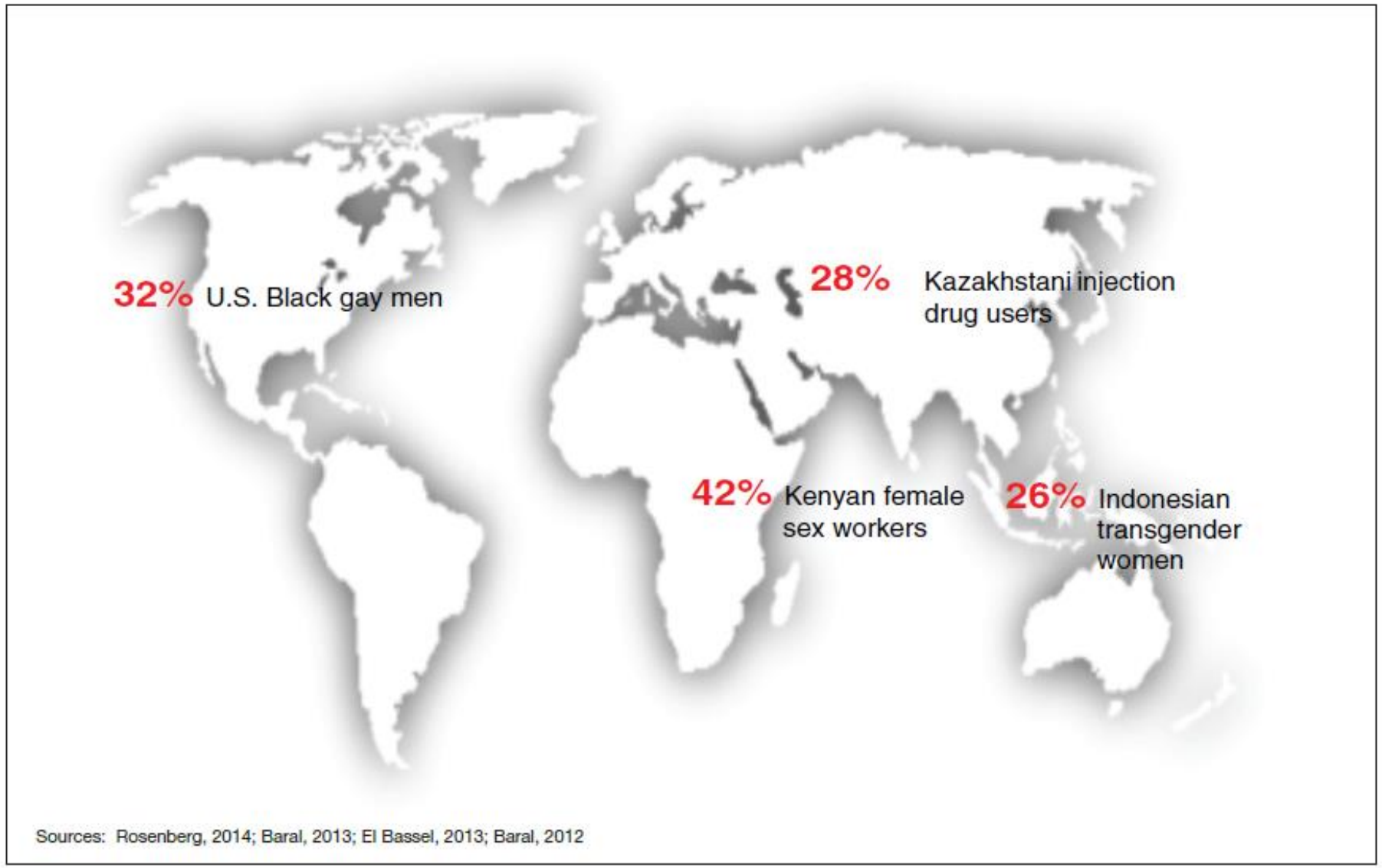




Sources: McQuillan G, Cuszon-Moran D. HIV Infection in the United States Household Population Aged 18–49 Years: Results from 1999-2006. National Center for Health Statistics Data Brief. January 2008. Available at http://www.cdc.gov/nchs/data/databriefs/db04.pdf

Rosenberg E, Millett G, Sullivan P, del Rio C, Curran J. Understanding the HIV disparities between black and white men who have sex with men in the USA using the HIV care continuum: a modelling study. Lancet HIV. 2014. 1 (No. 3):112-118. Available at http://www.thelancet.com/journals/lanhiv/article/PIIS2352-3018(14)00011-3/abstract

Figure 6. The percentage of U.S. Black gay men living with HIV is similar to other greatly impacted populations globally.



Sources: Rosenberg, 2014; Baral, 2013; El Bassel, 2013; Baral, 2012

Individual and Network Factors Associated With Racial Disparities in HIV Among Young Men Who Have Sex With Men: Results From the RADAR Cohort Study

Brian Mustanski, PhD,† Ethan Morgan, PhD,* Richard D'Aquila, MD,‡ Michelle Birkett, PhD,* Patrick Janulis, PhD,* and Michael E. Newcomb, PhD**

Background: Individual sexual risk behaviors have failed to explain the observed racial disparity in HIV acquisition. To increase understanding of potential drivers in disparities, we assessed differences across individual, network, and social determinants.

Methods: Data come from RADAR (N = 1015), a longitudinal cohort study of multilevel HIV-risk factors among young men who have sex with men (YMSM) aged 16–29 years in Chicago, IL. Data collection includes biological specimens; network data, including detailed information about social, sexual, and drug-use networks; and psychosocial characteristics of YMSM.

Results: Compared to white YMSM (24.8%) and Hispanic YMSM (30.0%), black YMSM (33.9%) had a higher prevalence of both HIV (32%; $P < 0.001$) and rectal sexually transmitted infections (26.5%; $P = 0.011$) with no observed differences in pre-exposure prophylaxis use. Black YMSM reported lower rates of sexual risk behaviors and more lifetime HIV tests ($P < 0.001$) compared with all other YMSM; however, they were also significantly less likely to achieve viral suppression ($P = 0.01$). Black YMSM reported the highest rate of cannabis use ($P = 0.03$) as well as greater levels of stigma ($P < 0.001$), victimization ($P = 0.04$), trauma ($P < 0.001$), and childhood sexual abuse ($P < 0.001$). White YMSM reported higher rates of depression ($P < 0.001$) and alcohol use ($P < 0.001$). In network analyses, significant differences existed across network characteristics with black YMSM having the lowest transitivity ($P = 0.002$), the highest density ($P < 0.001$), and the highest homophily ($P < 0.001$).

Conclusions: Black YMSM do not report higher rates of HIV-risk behaviors, but social and network determinants are aligned toward increased HIV risk. These results suggest that network interventions and those addressing social determinants may help reduce disparities.

Key Words: HIV, racial disparities, networks, epidemiology

(*J Acquir Immune Defic Syndr* 2019;80:24–30)

INTRODUCTION

There is a marked racial disparity observed in HIV in the United States with black men who have sex with men (MSM) experiencing the greatest burden of infection compared with other racial/ethnic groups. In 2015, two-thirds of all new HIV diagnoses in the United States occurred among MSM, with black MSM (41.4%) accounting for the plurality of these diagnoses followed by white MSM (30.4%) and Hispanic MSM (28.2%).[1] During the period of 2010–2014, the Centers for Disease Control and Prevention (CDC) reported differential trends in HIV diagnoses by race and ethnicity: White MSM saw an 11% decline, black MSM experienced a 1% increase, and Hispanic MSM saw a 14% increase in the rate of new HIV diagnoses.[1] Furthermore, more than one-third of new diagnoses in 2014 occurred among young MSM (YMSM; aged 13–29 years).[1] Should these disparities persist, the US CDC predicts 1 in 2 black MSM, 1 in 5 Hispanic MSM, and 1 in 11 white MSM will become infected with HIV during their lifetime.[2] To inform research on disparities, the National Institute of Minority Health and Health Disparities has developed a multilevel research framework that is applicable across a broad range of health conditions, including HIV.[3] We drew from this framework, which encourages consideration of how biological, behavioral, and sociocultural factors at multiple levels of influence (individual, social, and systems) impact health

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The authors have no funding or conflicts of interest to disclose.

Protection of human subjects: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute on Drug Abuse or the National Institutes of Health. The sponsor had no involvement in the conduct of the research or the preparation of the article.

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TABLE 2. Social, Biological, and Structural Characteristics of Sample Stratified by Race and Ethnicity, RADAR, Chicago 2015–2017 (N = 1015)

Characteristic	Black, (n = 344)	Latino, (n = 304)	White, (n = 252)	Other, (n = 115)	*P*
Individual					
Mental health					
Depression, mean (SD)	14.31 (7.40)	16.17 (7.54)	16.69 (7.23)	15.35 (7.61)	<0.001
Suicide ideation, %	9.88	11.18	14.74	11.30	0.33
Suicide plan, %	7.84	6.57	4.78	8.70	0.41
Suicide attempt, %	6.39	3.29	1.59	6.09	0.01
Substance use, mean (SD)					
AUDIT	4.50 (5.34)	6.30 (5.52)	7.61 (5.73)	5.48 (4.52)	<0.001
CUDIT	6.73 (6.54)	6.09 (6.53)	5.08 (5.73)	6.11 (6.13)	0.034
Sexual risk–taking, mean (SD)					
# Sexual partners	2.46 (2.84)	2.83 (2.95)	3.93 (3.81)	3.40 (3.25)	<0.001
# CAS partners	0.46 (0.50)	0.60 (0.49)	0.59 (0.49)	0.60 (0.49)	<0.001
Stigma, mean (SD)					
Internalized stigma	1.85 (0.71)	1.68 (0.69)	1.63 (0.64)	1.87 (0.73)	<0.001
Externalized stigma	2.80 (0.80)	2.65 (0.70)	2.56 (0.68)	2.67 (0.74)	<0.001
Biological					
Detectable viral load, %*	61.11	42.10	20.00	28.57	0.01
Rectal STI positive, %	26.45	12.83	7.14	12.17	<0.001
Structural					
Violence and trauma					
Victimization, mean (SD)	0.28 (0.57)	0.19 (0.44)	0.15 (0.39)	0.27 (0.54)	0.037
Trauma (ever), mean (SD)	1.96 (1.98)	1.61 (1.92)	1.29 (1.61)	1.70 (1.76)	<0.001
Intimate partner violence, %	9.01	9.86	7.57	9.57	0.813
Childhood sexual abuse (ever), %	31.98	28.95	14.00	28.95	<0.001
Prevention access					
HIV test, mean (SD)	8.24 (13.63)	5.59 (11.49)	3.46 (5.92)	7.06 (14.21)	<0.001
PrEP use in past 6 mo, %	7.14	4.78	7.72	7.84	0.510
Treatment access*					
Missed dosage in the past wk, %	28.76	27.59	0.00	27.27	0.835
No. of visits to health care provider, mean (SD)	2.92 (2.83)	2.75 (3.51)	1.60 (0.89)	5.08 (7.33)	0.424

*Among HIV-diagnosed participants only.

Virginia - VDH Opioid Indicators - HIV

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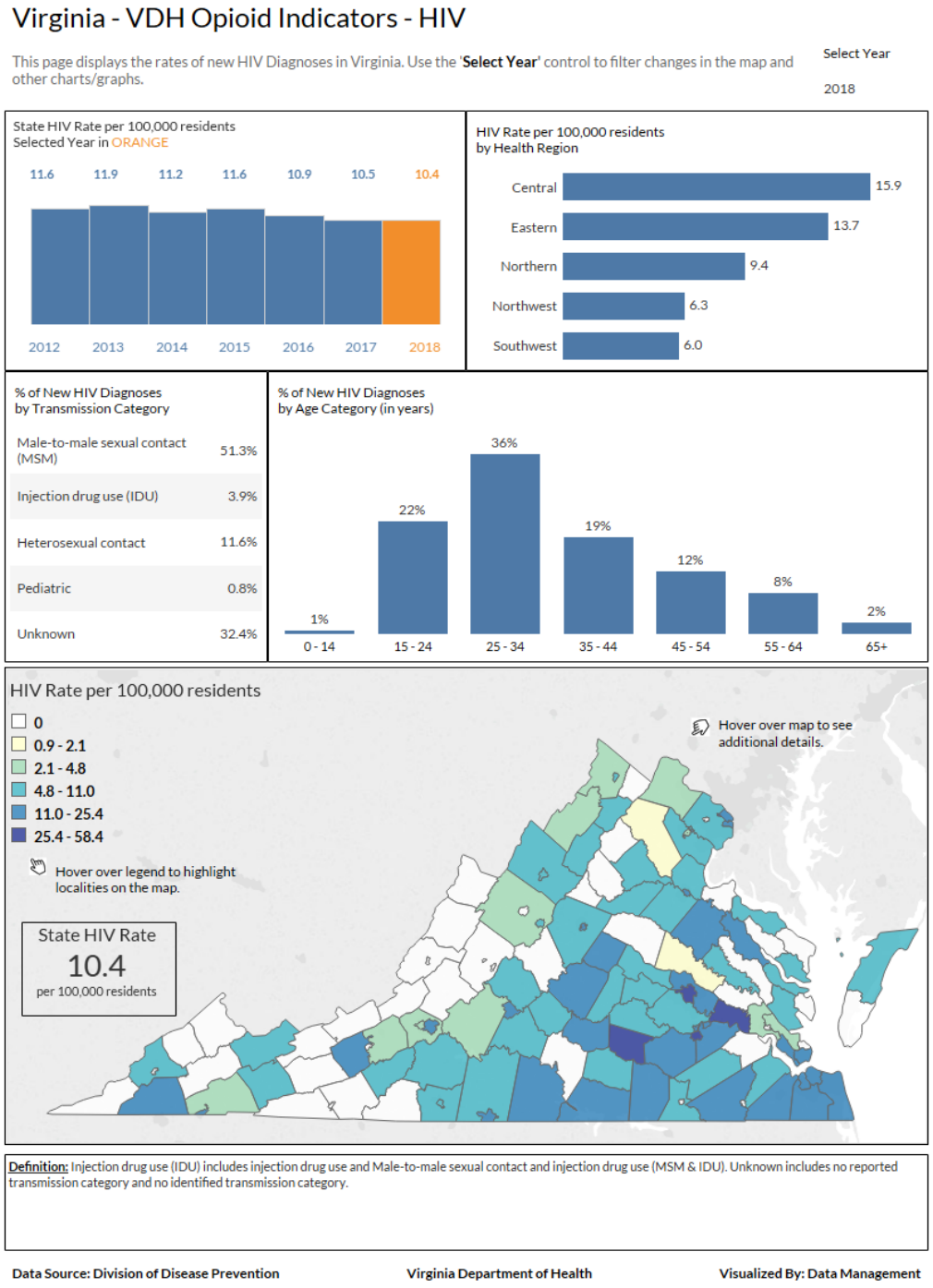
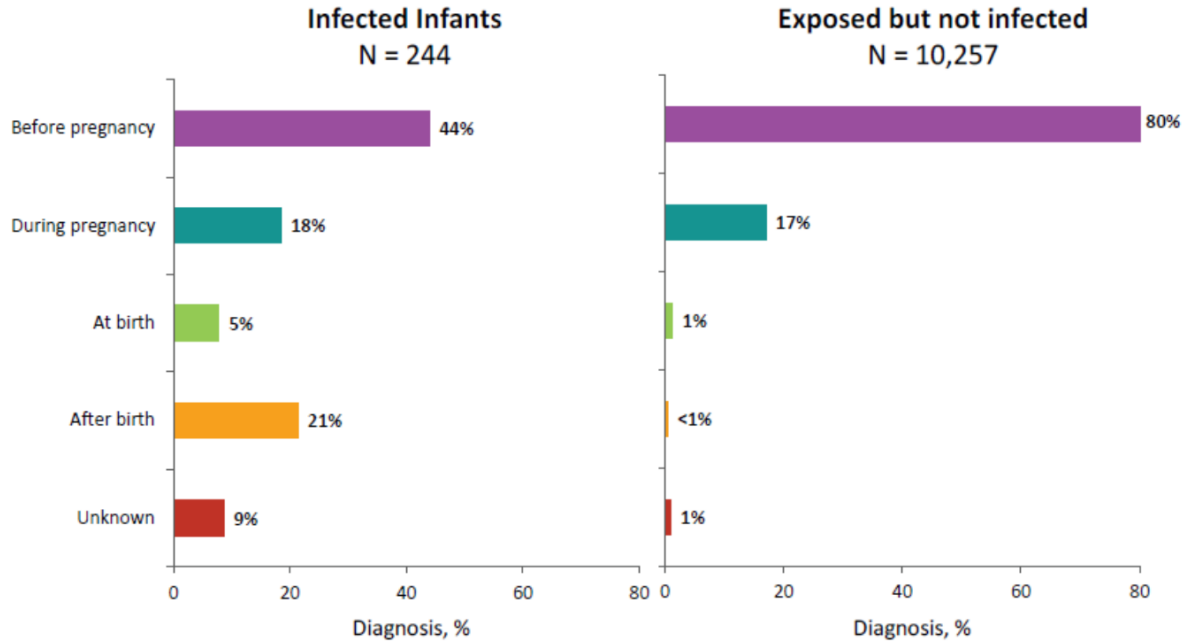


Figure 27. Time of maternal HIV testing among children with diagnosed, perinatally acquired HIV infection and children exposed to HIV, birth years 2014–2017—United States and Puerto Rico.



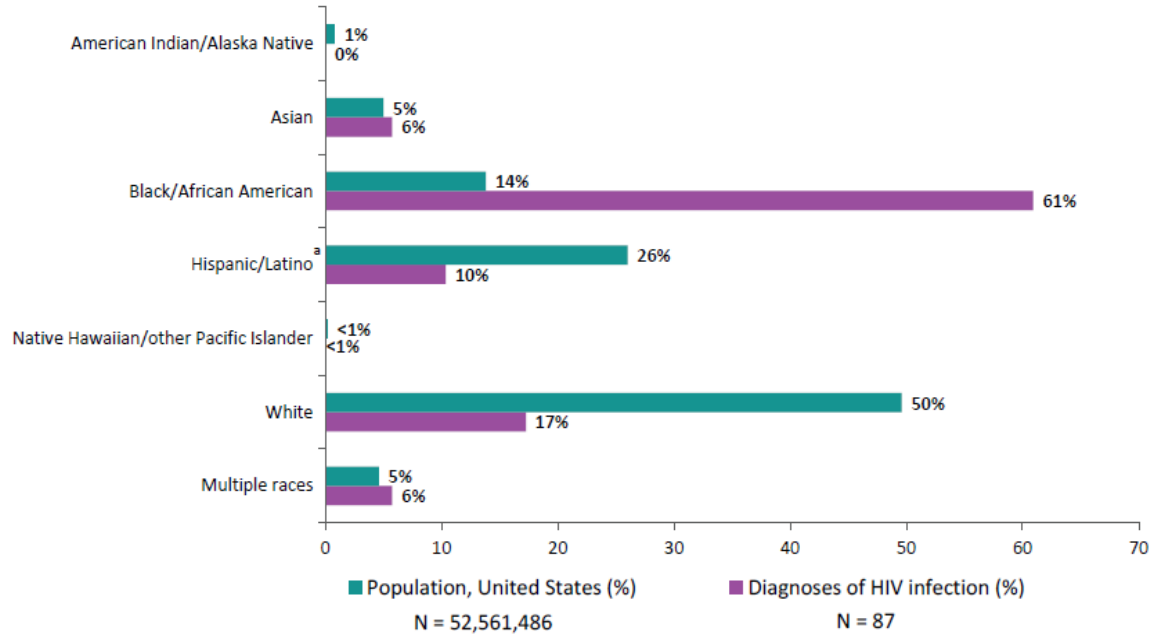
HIV SURVEILLANCE REPORT

Volume 31

Diagnoses of HIV Infection in the United States and Dependent Areas, 2018
(Updated)

National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention
Division of HIV/AIDS Prevention

Figure 29. Diagnoses of HIV infection and population in children aged <13 years by race/ethnicity, 2018—United States



CDC Recommendations for Hepatitis C Screening Among Adults — United States, 2020

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[1]*Division of Viral Hepatitis, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, CDC*

Summary

Hepatitis C virus (HCV) infection is a major source of morbidity and mortality in the United States. HCV is transmitted primarily through parenteral exposures to infectious blood or body fluids that contain blood, most commonly through injection drug use. No vaccine against hepatitis C exists and no effective pre- or postexposure prophylaxis is available. More than half of persons who become infected with HCV will develop chronic infection. Direct-acting antiviral treatment can result in a virologic cure in most persons with 8–12 weeks of all-oral medication regimens. This report augments (i.e., updates and summarizes) previously published recommendations from CDC regarding testing for HCV infection in the United States (Smith BD, Morgan RL, Beckett GA, et al. Recommendations for the identification of chronic hepatitis C virus infection among persons born during 1945–1965. MMWR Recomm Rec 2012;61[No. RR-4]). *CDC is augmenting previous guidance with two new recommendations: 1) hepatitis C screening at least once in a lifetime for all adults aged ≥18 years, except in settings where the prevalence of HCV infection is <0.1% and 2) hepatitis C screening for all pregnant women during each pregnancy, except in settings where the prevalence of HCV infection is <0.1%. The recommendation for HCV testing that remains unchanged is regardless of age or setting prevalence, all persons with risk factors should be tested for hepatitis C, with periodic testing while risk factors persist. Any person who requests hepatitis C testing should receive it, regardless of disclosure of risk, because many persons might be reluctant to disclose stigmatizing risks.*

Introduction

Hepatitis C is the most commonly reported bloodborne infection in the United States (*1*), and surveys conducted during 2013–2016 indicated an estimated 2.4 million persons (1.0%) in the nation were living with hepatitis C (*2*). Percutaneous exposure is the most efficient mode of hepatitis C virus (HCV) transmission, and injection drug use (IDU) is the primary risk factor for infection (*1*). National surveillance data revealed an increase in reported cases of acute HCV infection every year from 2009 through 2017 (*1*). The highest rates of acute infection are among persons aged 20–39 years (*1*). As new HCV infections have increased among reproductive aged adults, rates of HCV infection nearly doubled during 2009–2014 among women with live births (*3*). In 2015, 0.38% of live births were delivered by mothers with hepatitis C (*4*).

This report augments (i.e., updates and summarizes) previous CDC recommendations for testing of hepatitis C among adults in the United States published in 1998 and 2012 (*5,6*). the recommendations in this report do not replace or modify previous recommendations for hepatitis C testing that are based on known risk factors or clinical indications. Previously published recommendations for hepatitis C testing of persons with risk factors and alcohol use screening and intervention for persons identified as infected with HCV remain in effect (*5,6*). This report is intended to serve as a resource for health care professionals, public health officials, and organizations involved in the development, implementation, delivery, and evaluation of clinical and preventive services.

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Epidemiology

In 2017, a total of 3,216 cases (1.0 per 100,000 population) of acute HCV infection were reported to CDC (*1*). The reported number of cases in any given year likely represents less than 10% of the actual number of cases because of underascertainment and underreporting (*7*). An estimated 44,700 new cases of HCV infection occurred in 2017. The rate of reported acute HCV infections increased from 0.7 cases per 100,000 population in 2013 to 1.0 in 2017 (Figure 1) (*1*). In 2017, acute HCV incidence was greatest for persons aged 20–29 years (2.8) and 30–39 years (2.3) (*1*). Persons aged ≤19 years had the lowest incidence (0.1) (*1*). Incidence was slightly greater for males than females (1.2 cases and 0.9, respectively) (*1*). During 2006–2012, the combined incidence of acute HCV infection in four states (Kentucky, Tennessee, Virginia, and West Virginia) increased 364% among persons

FIGURE 1. Incidence rates* of reported acute hepatitis C cases — United States, 2000–2017

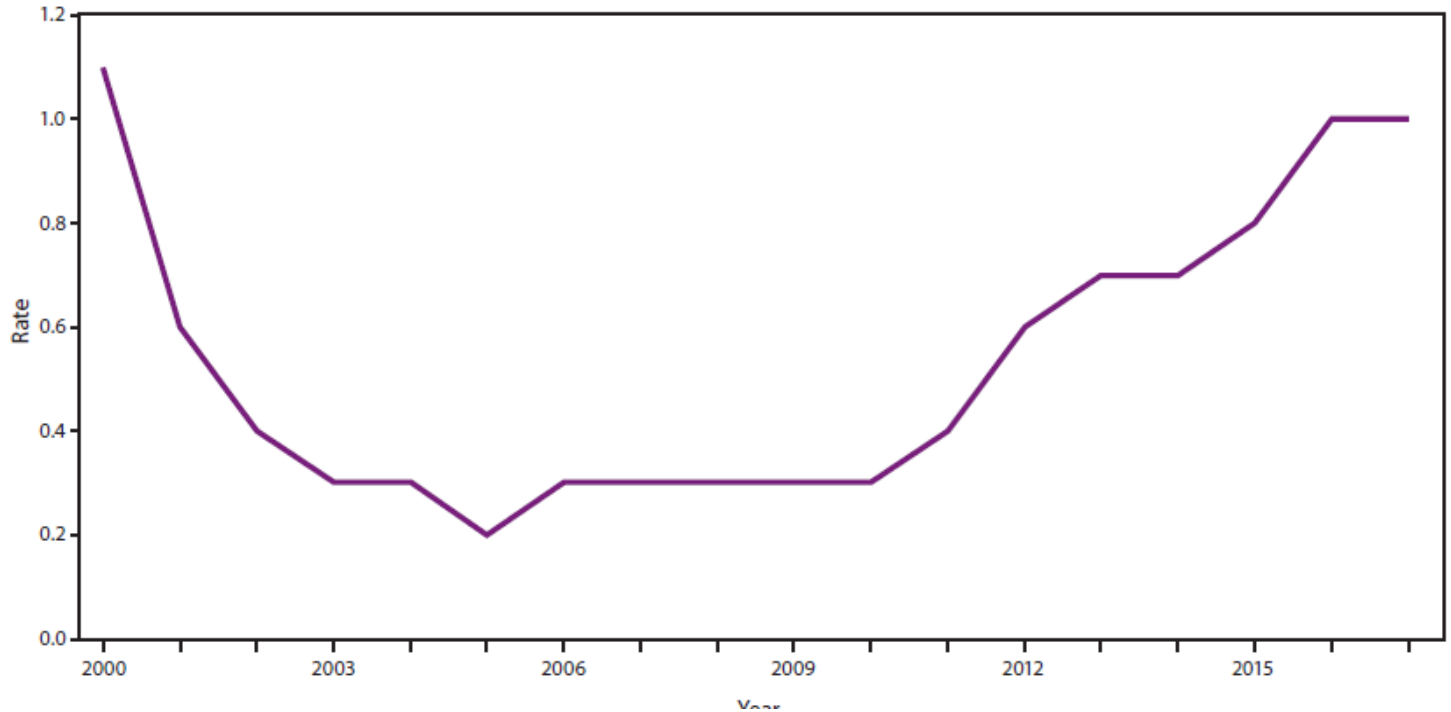
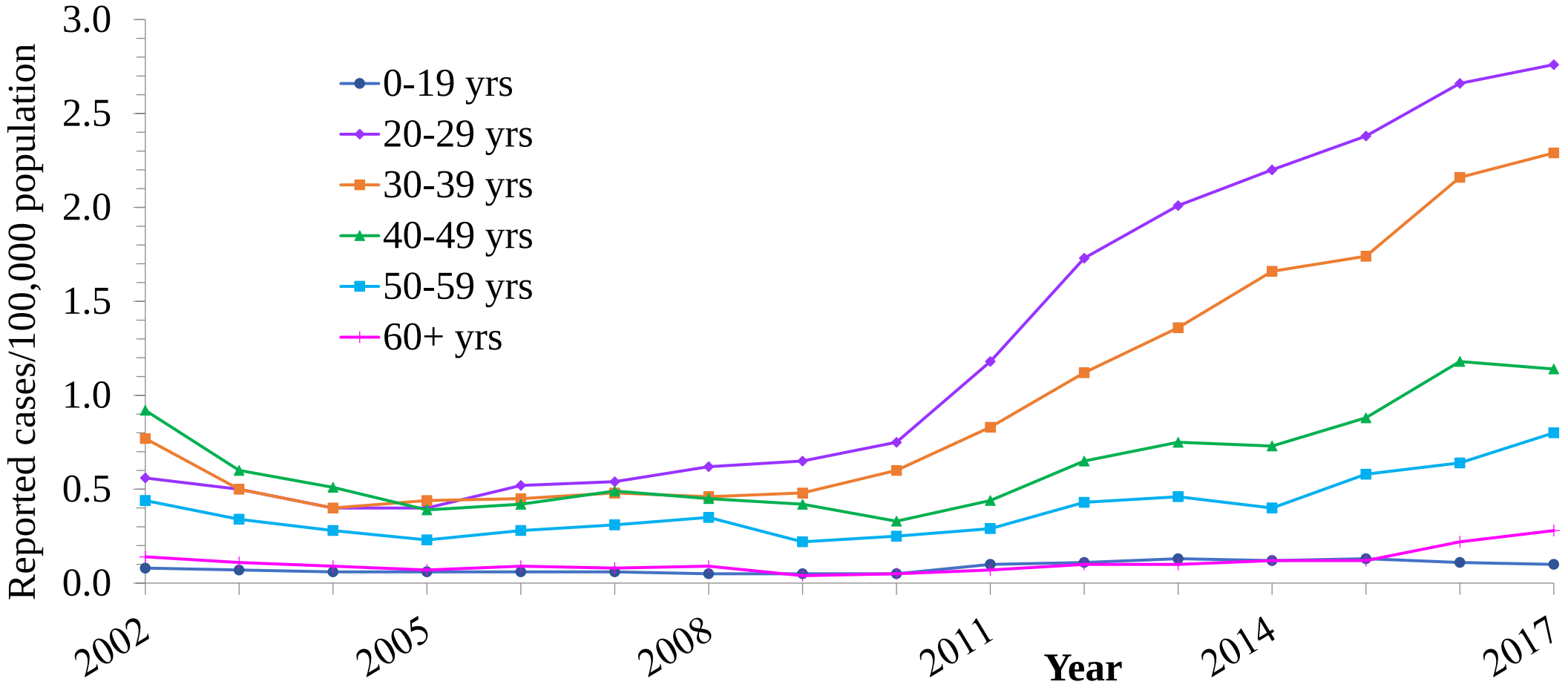
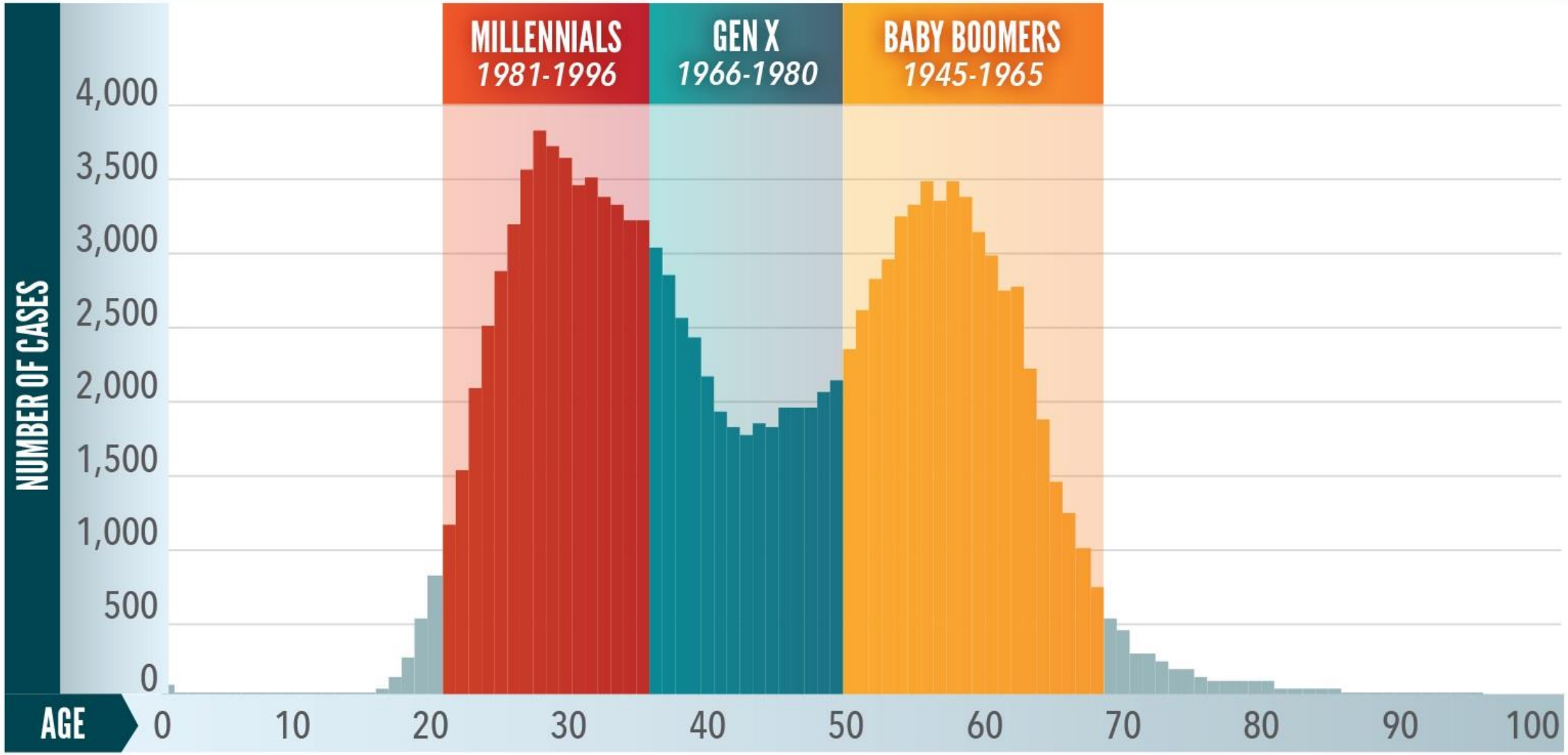


Figure 4.3. Rates of reported acute hepatitis C, by age group — United States, 2002–2017



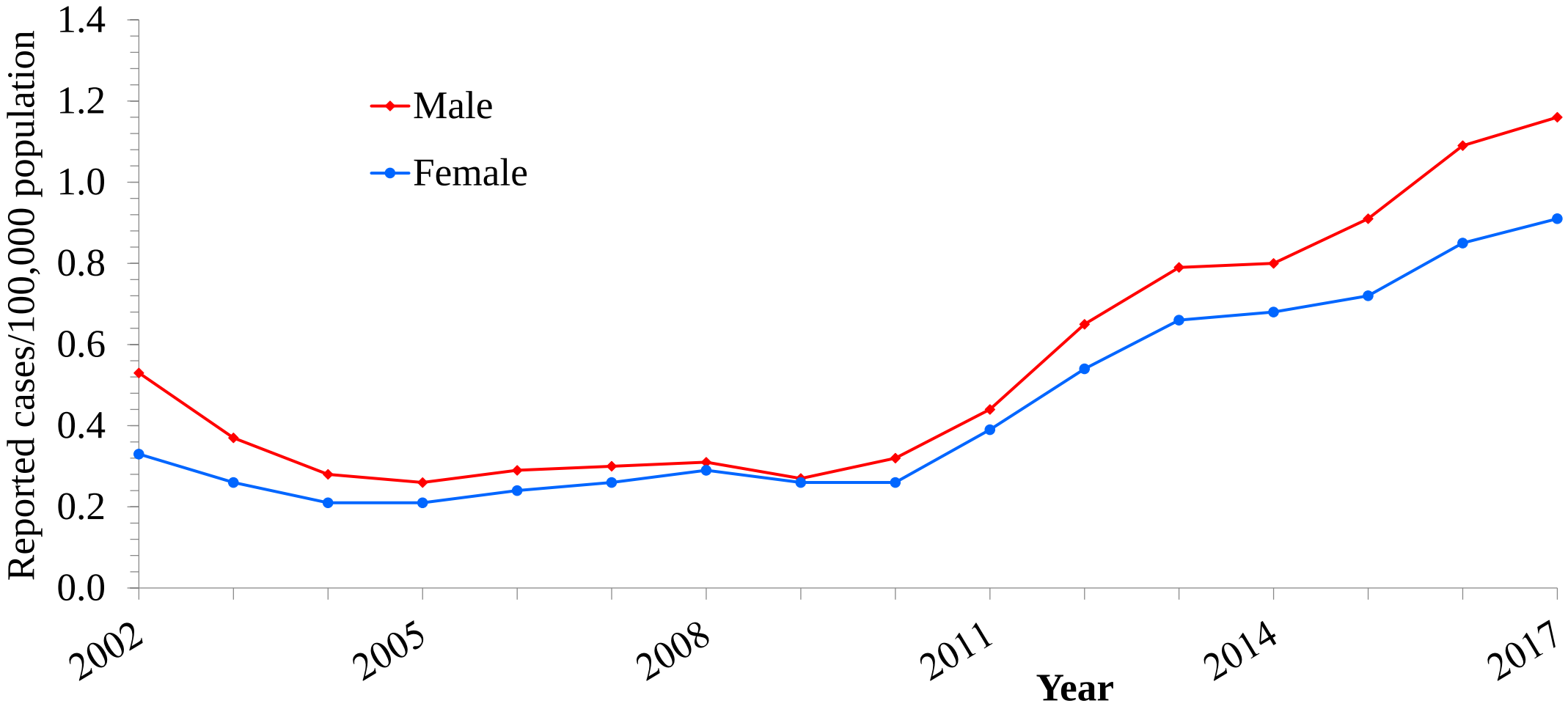
Source: CDC, National Notifiable Diseases Surveillance System.

New Reports of Chronic Hepatitis C High in Multiple Generations



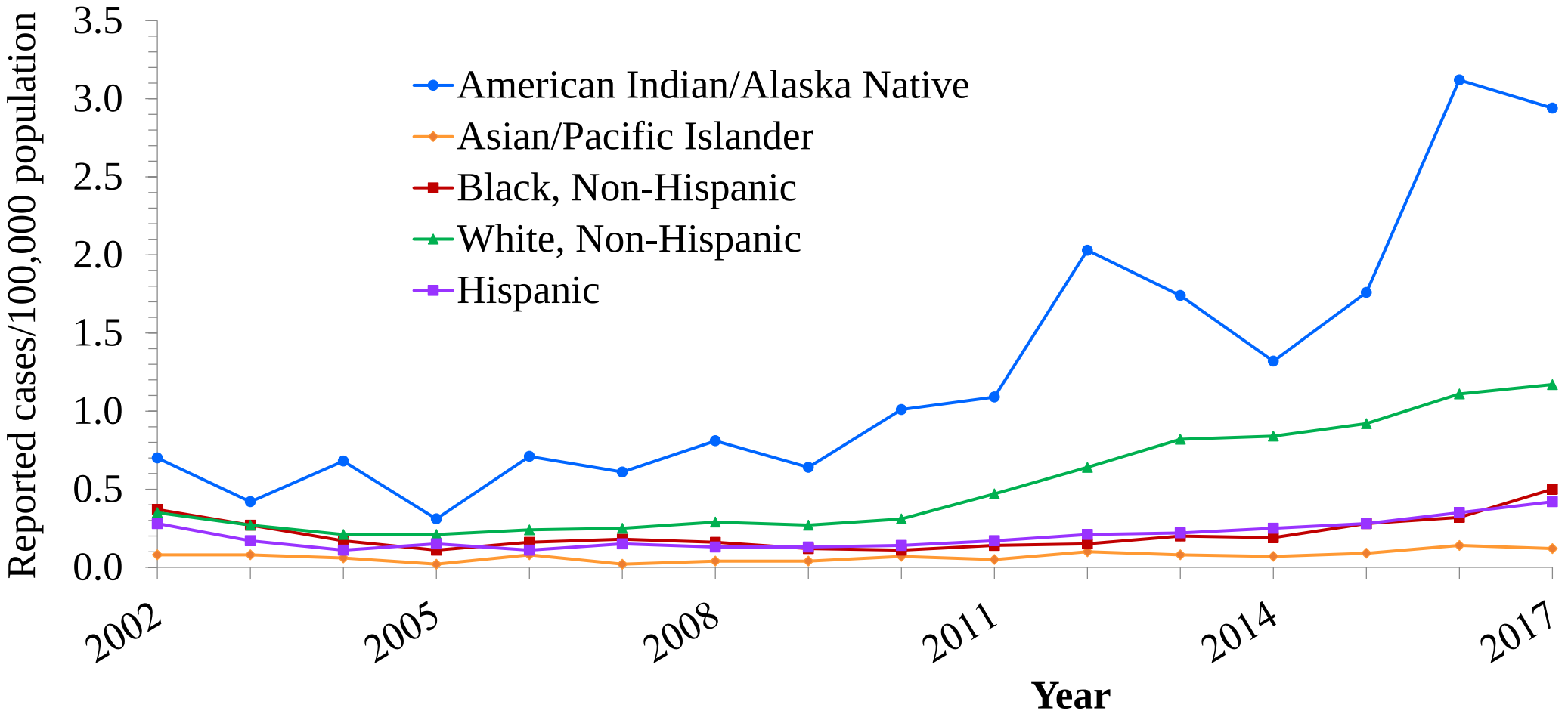
SOURCE: National Notifiable Diseases Surveillance System, 2018

Figure 4.4. Rates of reported acute hepatitis C, by sex — United States, 2002–2017



Source: CDC, National Notifiable Diseases Surveillance System.

Figure 4.5. Rates of reported acute hepatitis C, by race/ethnicity — United States, 2002–2017



Source: CDC, National Notifiable Diseases Surveillance System.

Increases in Acute Hepatitis C Virus Infection Related to a Growing Opioid Epidemic and Associated Injection Drug Use, United States, 2004 to 2014

Jon E. Zibbell, PhD, Alice K. Asher, PhD, Rajiv C. Patel, MPH, Ben Kupronis, MPH, Kashif Iqbal, MPH, John W. Ward, MD, and Deborah Holtzman, PhD

Objectives. To compare US trends in rates of injection drug use (IDU), specifically opioid injection, with national trends in the incidence of acute HCV infection to assess whether these events correlated over time.

Methods. We calculated the annual incidence rate and demographic and risk characteristics of reported cases of acute HCV infection using surveillance data from 2004 to 2014 and the annual percentage of admissions to substance use disorder treatment facilities reporting IDU for the same time period by type of drug injected and demographic characteristics. We then tested for trends.

Results. The annual incidence rate of acute HCV infection increased more than 2-fold (from 0.3 to 0.7 cases/100 000) from 2004 to 2014, with significant increases among select demographic subgroups. Admissions for substance use disorder attributed to injection of heroin and prescription opioid analgesics increased significantly, with an almost 4-fold increase in prescription opioid analgesic injection. Significant increases in opioid injection mirrored those for reported cases of acute HCV infection among demographic subgroups.

Conclusions. These findings strongly suggest that the national increase in acute HCV infection is related to the country's opioid epidemic and associated increases in IDU. (*Am J Public Health.* 2018;108:175–181. doi:10.2105/AJPH.2017.304132)

See also Page et al., p. 156; and also Wong, p. 173.

Hepatitis C virus infection is the most common chronic blood-borne infection in the United States and a substantial cause of morbidity and mortality.[1] Injection drug use (IDU) is the primary risk factor for HCV transmission and the leading cause of incidence in the United States.[2] HCV infection can occur rapidly after IDU initiation: A meta-analysis examining the time from onset of injection to incidence of HCV infection found a cumulative incidence of 28% (95% confidence interval = 17%, 42%) at 1 year of drug injection.[3] Consequently, once the virus is introduced into a network of persons who inject drugs (PWID), it can circulate quickly through the reuse of contaminated drug injection equipment—specifically, needles, syringes, cookers, and filters.[4,5] Other factors associated with increased risk for HCV infection include having a high injection frequency,[6] using high dead-space syringes,[7] and injecting prescription opioid analgesics (POAs).[8,9]

The demographic characteristics and behavioral risk factors associated with the increase in cases of acute HCV infection correspond to the populations and behaviors that characterize the nation's opioid epidemic. State surveillance data indicate a nationwide increase in reported cases of acute HCV infection since 2004, with the largest increases occurring east of the Mississippi River and exceptionally high concentrations in central Appalachia.[10] Findings from an analysis of data of 4 central Appalachian states from 2006 to 2012 showed that 45% of the increases in acute cases of HCV infection were among young persons (aged ≤ 30 years), with nearly three-quarters (196/265) of persons who reported a risk factor citing IDU.[11] Over the same time period, these 4 states also experienced a significant increase in the proportion of young persons admitted to substance use disorder (SUD) treatment who reported injecting opioids, including heroin and POAs. Similar increases in IDU and HCV infection have been documented in Massachusetts,[12] Wisconsin,[13] and New York,[14] and most recently a major HIV outbreak in southeastern Indiana was facilitated by the injection of the prescription opioid

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Correspondence should be sent to Alice K. Asher, Epidemiology, Division of Viral Hepatitis, Centers for Disease Control and Prevention, 1600 Clifton Road, MS-G37, Atlanta, GA 30345 (e-mail: buq1@cdc.gov). Reprints can be ordered at http://www.ajph.org by clicking the "Reprints" link.

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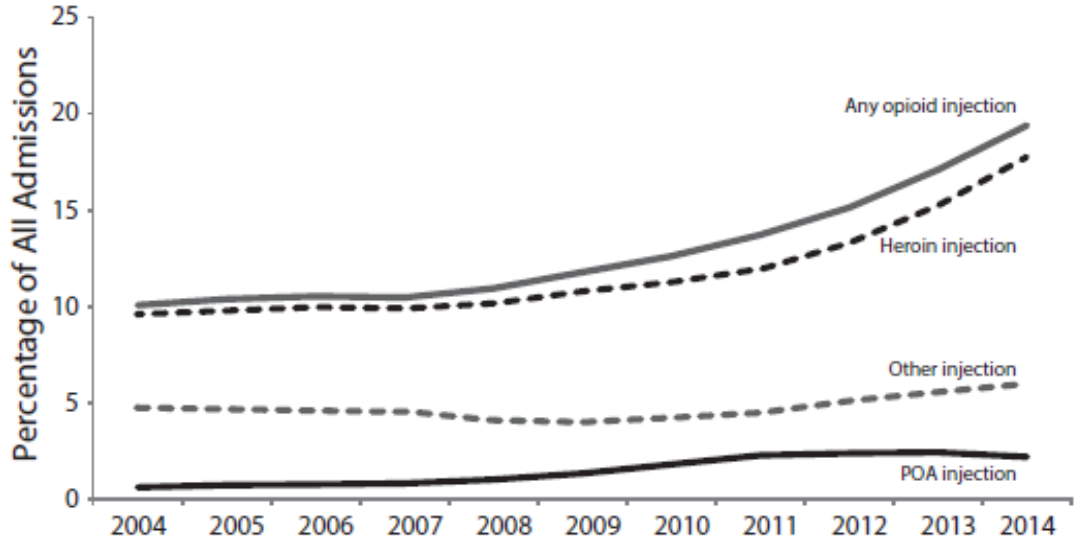
doi: 10.2105/AJPH.2017.304132



Note. POA = prescription opioid analgesic.

FIGURE 2—Percentage of All Admissions to Substance Use Disorder Treatment Facilities Attributed to the Injection of Any Opioid, Prescription Opioid Analgesic, Heroin, and All Other Drugs, by Year: Treatment Episode Data Set-Admissions, United States, 2004–2014

HEPATITIS C AND OPIOID INJECTION ROSE DRAMATICALLY AMONG WHITE AMERICANS FROM 2004-2014

- HCV increased by 300%
- Admissions for opioid injection increased by 134%

HCV Rate Among White (Non-Hispanic) Americans

Any Opioid Injection Among White (Non-Hispanic) Americans

Source: Centers for Disease Control and Prevention and Substance Abuse and Mental Health Services Administration

HEPATITIS C AND OPIOID INJECTION ROSE DRAMATICALLY AMONG WOMEN FROM 2004-2014

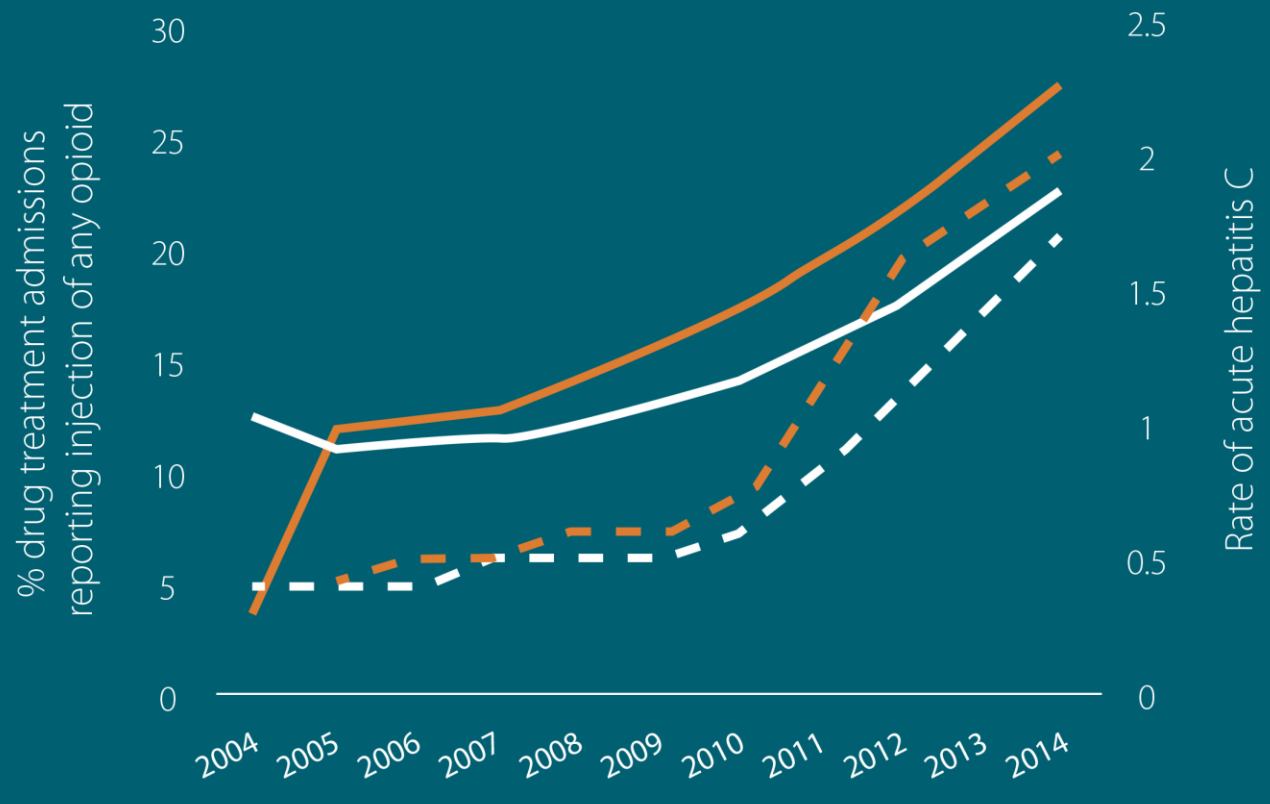
- HCV increased by 250%
- Admissions for opioid injection increased by 99%

HCV Rate Among Women

Any Opioid Injection Among Women

Source: Centers for Disease Control and Prevention and Substance Abuse and Mental Health Services Administration

HEPATITIS C AND OPIOID INJECTION ROSE DRAMATICALLY IN YOUNGER AMERICANS FROM 2004-2014

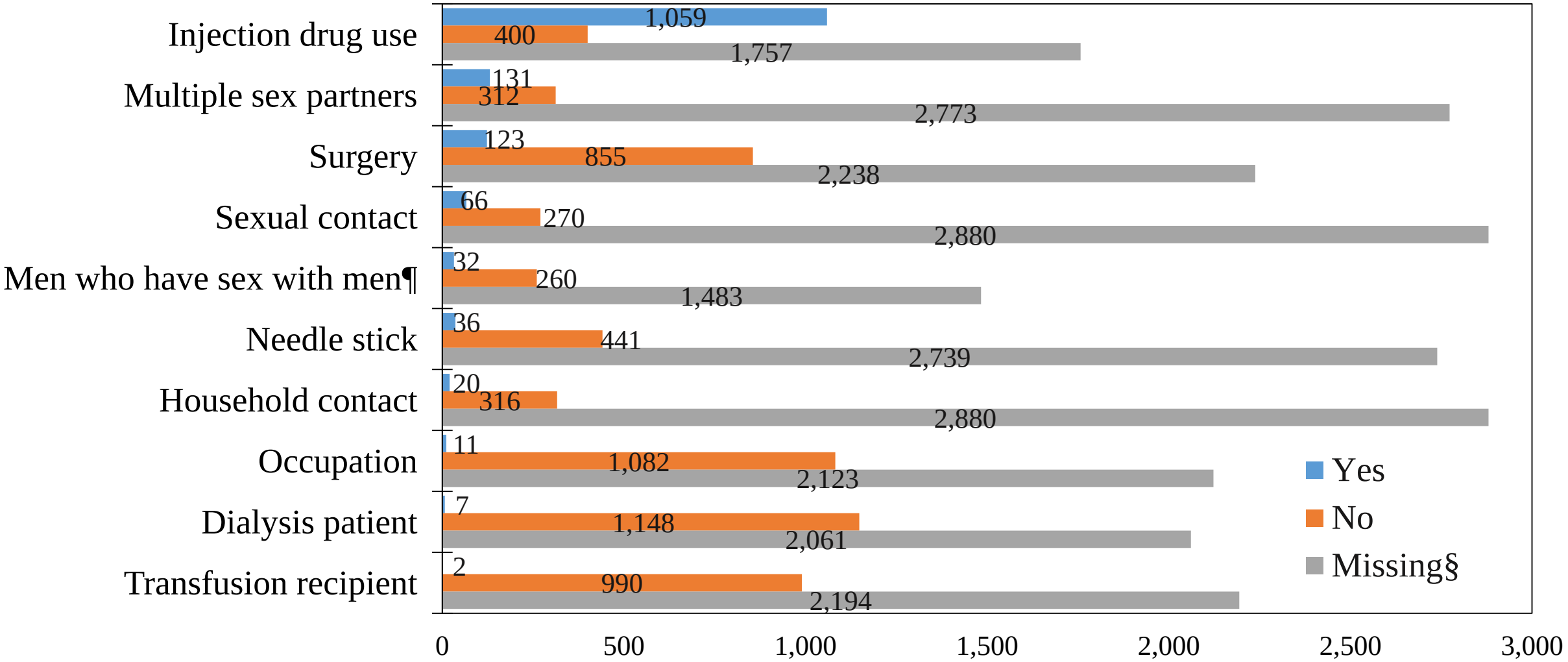


- Among people aged 18-29, HCV increased by 400% and admission for opioid injection by 622%
- Among people aged 30-39, HCV increased by 325% and admission for opioid injection by 83%

Any Opioid Injection (18-29)
Any Opioid Injection (30-39)
HCV Rate (18-29)
HCV Rate (30-39)

Source: Centers for Disease Control and Prevention and Substance Abuse and Mental Health Services Administration

Figure 4.7. Reported cases of acute hepatitis C*, by risk behavior/exposure† — United States, 2017



Source: CDC, National Notifiable Diseases Surveillance System.

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MMWR

Weekly

July 13, 1984 / 33(27);377-9

Antibodies to a Retrovirus Etiologically Associated with Acquired Immunodeficiency Syndrome (AIDS) in Populations with Increased Incidences of the Syndrome

Evidence implicates a retrovirus as the etiologic agent of acquired immunodeficiency syndrome (AIDS). Two prototype isolates have been described. One was isolated from the lymph node cells of a homosexual man with unexplained generalized lymphadenopathy, a syndrome associated with AIDS, and was termed lymphadenopathy-associated virus (LAV) (1). A morphologically similar T-lymphotropic retrovirus (HTLV-III) was isolated from lymphocytes of 26 (36%) of 72 patients with AIDS and from 18 (86%) of 21 patients with conditions thought to be related to AIDS (2). The isolation of retroviruses antigenically identical to LAV from a blood donor-recipient pair, each of whom developed AIDS, provides further evidence that this virus is the etiologic agent of AIDS and may be transmitted through blood transfusion (3).

Although direct comparative results have not been published, HTLV-III and LAV are likely to be the same virus because: they have the same appearance by electron microscopy; they are both lymphotropic and cytopathic for OKT-4 cells; isolates from American AIDS patients, when compared, were immunologically indistinguishable from LAV (3); serologic tests of a large number of specimens from patients with AIDS or related conditions show similar results when either of the prototype viruses is used as antigen (4); and preliminary results suggest that LAV and HTLV-III are at least highly related based on competitive radioimmunoassay of their core proteins (5).

Three basic serologic procedures are currently described for detection of antibody to HTLV-III/LAV: an enzyme-linked immunosorbent assay (ELISA) to whole disrupted virus (6-8); a radioimmunoprecipitation assay (RIPA) to the presumed major core protein (called p25) of LAV (9); and assay of antibody to major viral antigens by the Western blot technique (10, 11). Sera from several high-risk populations are being tested by these techniques by the National Cancer Institute, the Institut Pasteur, and CDC, with the support of numerous collaborators. The objectives of these investigations are to determine the frequency of exposure to HTLV-III/LAV and to correlate seropositivity with current infection, clinical signs and symptoms, and prognosis.

Preliminary data suggest that serologic evidence of exposure to HTLV-III/LAV may be common in certain populations at increased risk for AIDS. Antibody to HTLV-III was detected by ELISA in sera from six (35%) of 17 American homosexual men without symptoms of AIDS (6). Sera from eight (18%) of 44 homosexual men without lymphadenopathy attending a venereal disease clinic in Paris had antibody detected by ELISA to LAV (7). Antibody prevalence to LAV (RIPA) has increased from 1% (1/100) in 1978 to 25% (12/48) in 1980 and 65% (140/215) in 1984 among samples of sera from homosexual men attending a sexually transmitted diseases clinic in San Francisco (12). Antibody prevalence among the above men tested in 1984 who had no symptoms or clinical signs of AIDS or related conditions was 55% (69/126) (12). In New York City, where the AIDS cases among intravenous (IV) drug users are concentrated, 87% (75/86) of recent heavy IV drug users without AIDS had antibody to LAV by ELISA, while over 58% (50/86) of the same group had antibody to LAV detected by RIPA (13). In contrast, fewer than 10% of 35 methadone patients from New York City had antibody to LAV detected by RIPA. All of these latter patients had been in treatment at least 3 years with greatly reduced IV drug usage (14). Seventy-two percent (18/25) of asymptomatic persons with hemophilia A in a home-care treatment program demonstrated antibody to LAV antigens utilizing the Western blot technique (11). All had used factor VIII concentrates from 1980 to 1982. Reported by DC Des Jarlais, PhD, New York State Div of Substance Abuse Svcs, M Marmor, PhD, H Cohen, MPH, New York University Medical Center, S Yancovitz, MD, J Garber, Beth Israel Medical Center, S Friedman, PhD, Narcotic and Drug Research, MJ Kreek, MD, A Maescher, MD, E Khuri, MD, Rockefeller University, New York City, SM Friedman, MD, New York City Dept of Health, R Rothenberg, MD, State Epidemiologist, New York State Dept of Health; D Echenberg, MD, P O'Malley, E Braff, MD, San Francisco City/County Health Dept, J Chin, MD, State Epidemiologist, California Dept of Health Svcs; P Burtenol, MD, Hemophilia of Georgia, Atlanta, RK Sikes, DVM, State Epidemiologist, Georgia Dept of Human Resources; Div of Viral Diseases, Div of Host Factors, AIDS Activity, Center for Infectious Diseases, CDC.

Editorial Note

Editorial Note: The high prevalence of antibody to HTLV-III/LAV among these groups and the increasing prevalence among homosexual men in San Francisco add further support to HTLV-III/LAV being the etiologic agent of AIDS. They further demonstrate that exposure to the virus is much more common than AIDS itself among populations with increased incidences of the disease. If AIDS follows the pattern of many other infectious diseases, host response to infection would be expected to range from subclinical to severe. Milder disease states for AIDS have been suspected, since the reported frequency of lymphadenopathy and immunologic abnormalities, conditions associated with AIDS, has also been high in these groups. These data, based on limited samples of high-risk groups, suggest the spectrum of response to infection with HTLV-III/LAV may be wide.

These serologic tests are sufficiently sensitive and specific to be of value in estimating the frequency of infection with HTLV-III/LAV in certain populations and for providing important information about the natural history of the disease in such groups. Less clear are the implications of a positive test result for an individual. For some, the result may be a false positive caused by infection with an antigenically related virus or nonspecific test factors. The determination of the frequency and cause of falsely positive tests is essential for proper interpretation of test results, but remains to be established, particularly in populations, such as blood donors who belong to no known AIDS risk groups, where the prevalence of true infection with HTLV-III/LAV is expected to be very low.

A positive test for most individuals in populations at greater risk of acquiring AIDS will probably mean that the individual has been infected at some time with HTLV-III/LAV. Whether the person is currently infected or immune is not known, based on the serologic test alone--HTLV-III/LAV has been isolated in both the presence and absence of antibody--but the frequency of virus in antibody-positive persons is yet to be determined. For seropositive individuals with mild or no signs of disease, including those in whom the virus can be demonstrated, the prognosis remains uncertain. The incubation period for the life-threatening manifestations of AIDS may range from 1 year to more than 4 years (15).

Carefully planned and executed studies will be required to resolve these issues, and to clarify remaining questions about the natural history of AIDS and risk factors for transmission of the virus.

Until the usefulness of positive and negative serologic tests is fully established, all individuals in populations with increased incidences of AIDS, as well as those outside such groups with positive tests, should comply with the March 1983 Public Health Service recommendations for the prevention of AIDS to minimize the transmission of the syndrome (16). Abstention from IV drug usage and reduction of needle-sharing and other use of contaminated needles by IV drug users should also be effective in preventing transmission of the virus and of AIDS. There remains no evidence of transmission of AIDS through casual contact. Prevention measures should stress that transmission has been only through intimate sexual contact, sharing of contaminated needles, or, less frequently, through transfusion of blood or blood products.

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SUPPLEMENT ARTICLE

OPEN

Using Interrupted Time Series Analysis to Measure the Impact of Legalized Syringe Exchange on HIV Diagnoses in Baltimore and Philadelphia

Monica S. Ruiz, PhD, MPH,[a] Allison O'Rourke, MPH,[b] Sean T. Allen, DrPH, MPH,[c] David R. Holtgrave, PhD,[c] David Metzger, PhD,[d,e] Jose Benitez, MSW,[f] Kathleen A. Brady, MD,[g] C. Patrick Chaulk, MD, MPH,[h] and Leana S. Wen, MD[i]

Background: Syringe exchange programs (SEP) reduce HIV incidence associated with injection drug use (IDU), but legislation often prohibits implementation. We examined the policy change impact allowing for SEP implementation on HIV diagnoses an people who inject drugs in 2 US cities.

Setting: Philadelphia, PA, and Baltimore, MD.

Methods: Using surveillance data from Philadelphia (1984–2 and Baltimore (1985–2013) for IDU-associated HIV diagnoses used autoregressive integrated moving averages modeling to con 2 tests to measure policy change impact. We forecast the numb expected HIV diagnoses per city had policy not changed in th years after implementation and compared it with the numb observed diagnoses postpolicy change, obtaining an estimat averted HIV diagnoses. We then used interrupted time series ana to assess the immediate step and trajectory impact of policy ch implementation on IDU-attributable HIV diagnoses.

Results: The Philadelphia (1993–2002) model predicted 15,248 new IDU-associated HIV diagnoses versus 4656 observed diagnoses, yielding 10,592 averted HIV diagnoses over 10 years. The Baltimore model (1995–2004) predicted 7263 IDU-associated HIV

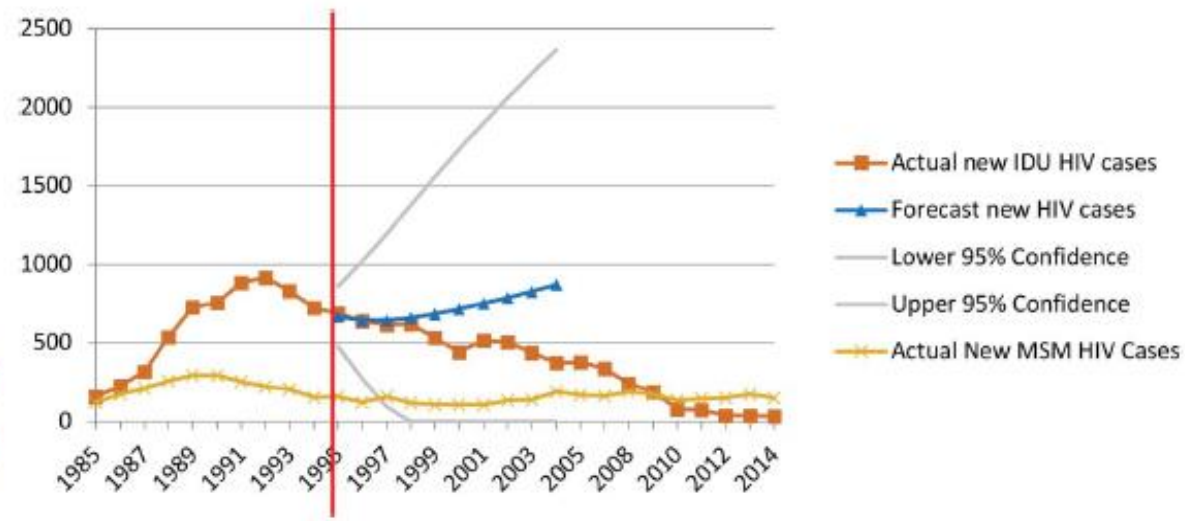


FIGURE 3. Forecasted versus actual diagnoses of IDU-associated and MSM-associated HIV diagnoses (control case scenario) in Baltimore during the 10 years after the change in syringe exchange policy.

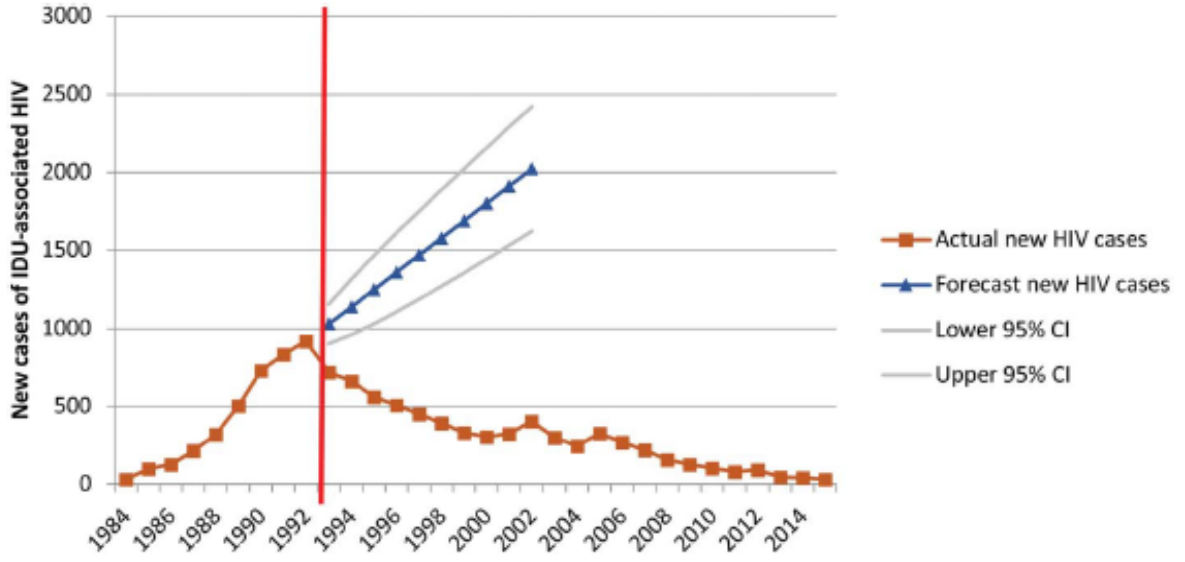


FIGURE 1. Forecasted versus actual diagnoses of IDU-associated HIV infection in Philadelphia during the 10 years after the change in syringe exchange

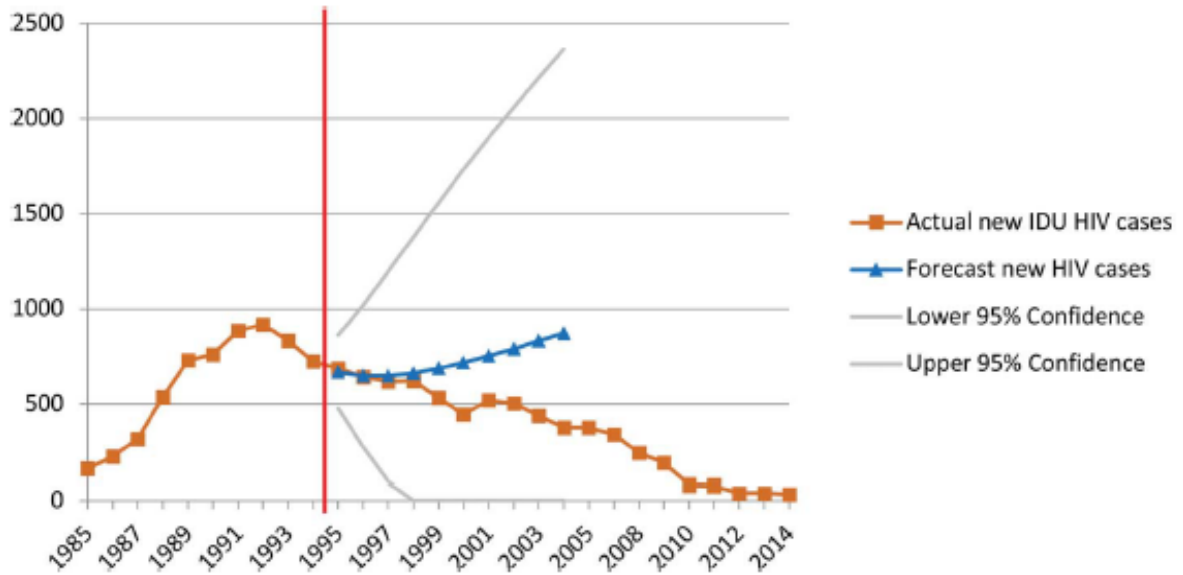


FIGURE 2. Forecasted versus actual diagnoses of IDU-associated HIV diagnoses in Baltimore during the 10 years after the change in syringe exchange policy.

What are Syringe Services Programs (SSPs)?

Syringe Services Programs, often called SSPs, are community-based prevention programs. SSPs provide a range of health services, and they provide a lifeline to those struggling with substance abuse. Comprehensive SSPs offer patients vaccinations and testing for diseases, referrals to treatment for substance use disorder and other diseases (such as viral hepatitis and HIV), and sterile injection equipment to prevent the transmission of infectious diseases.

Scientists, including those at the Centers for Disease Control and Prevention (CDC), have studied SSPs for more than 30 years and found that comprehensive SSPs benefit communities.

SSPs save lives by lowering the likelihood of deaths from overdoses.

Providing testing, counseling, and sterile injection supplies helps prevent outbreaks of other diseases. For example, SSPs are associated with a **50% decline** in the risk of HIV transmission.

Users of SSPs were **three times more likely** to stop injecting drugs.

Law enforcement benefits from reduced risk of needlesticks, **no increase in crime**, and the ability to save lives by preventing overdoses.

When two similar cities were compared, the one with an SSP had **86% fewer syringes** in places like parks and sidewalks.

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

CS300156-D March 22, 2019

What can a Syringe Services Program (SSP) do?

SSPs adapt to local needs by providing comprehensive support services, such as ways to get treatment, medicines to prevent overdoses, and tools to prevent HIV and viral hepatitis. Many support services may be operated in partnership with federal government funding.

More than 30 years' worth of research demonstrates that SSPs protect the public's health. They save lives, help those experiencing a substance use disorder get the support needed to regain a healthy life, and reduce the impact of drug use on the community.

Visit www.cdc.gov/PWID to learn more.

County-Level Vulnerability Assessment for Rapid Dissemination of HIV or HCV Infections Among Persons Who Inject Drugs, United States

Michelle M. Van Handel, MPH, Charles E. Rose, PhD,* Elaine J. Hallisey, MA,† Jessica L. Kolling, MPH,‡ Jon E. Zibbell, PhD,§ Brian Lewis, BS,‖ Michele K. Bohm, MPH,¶ Christopher M. Jones, PharmD, MPH,# Barry E. Flanagan, PhD,‖ Azfar-E-Alam Siddiqi, MD, PhD,* Kashif Iqbal, MPH,* Andrew L. Dent, MA, MBA,† Jonathan H. Mermin, MD, MPH,** Eugene McCray, MD,* John W. Ward, MD,§ and John T. Brooks, MD**

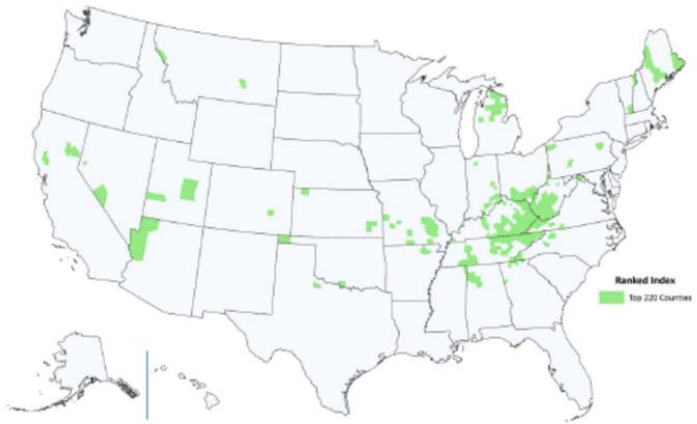


FIGURE 2. Counties for which estimated vulnerability scores or their upper 90% confidence interval exceeded the 95th percentile. Map produced by the Geospatial Research, Analysis, and Services Program (GRASP).

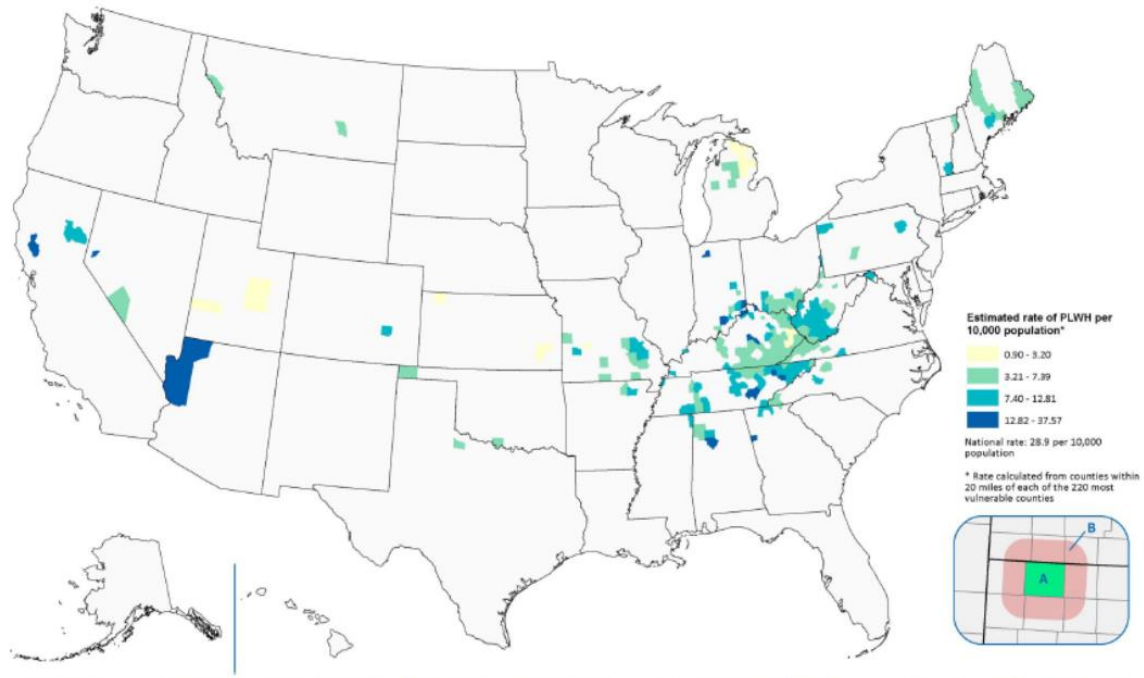
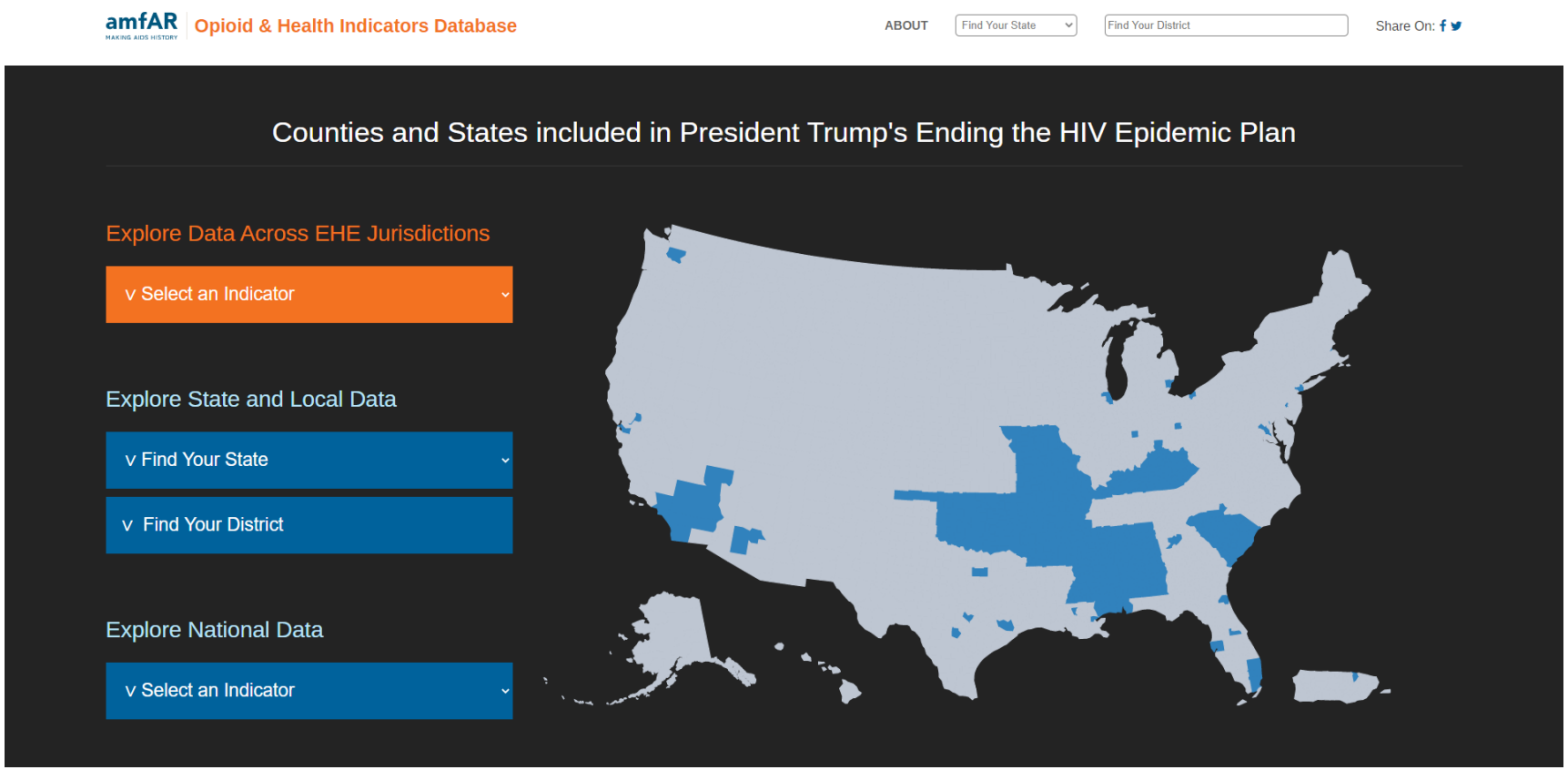


FIGURE 3. Estimated rate of people living with diagnosed HIV infection (PLWH) per 10,000 population in and around each vulnerable county at year-end 2012. The weighted average rate of people living with diagnosed HIV infection in the vulnerable county (inset A) and 20 miles beyond the vulnerable county border (inset B) was calculated using the area proportion of each adjacent county within the 20-mile buffer zone and the number of PLWH and county population estimates at year-end 2012. Map produced by the Geospatial Research, Analysis, and Services Program (GRASP).

https://opioid.amfar.org/



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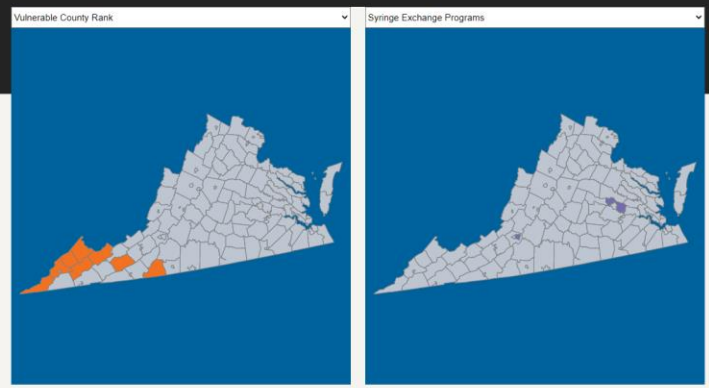


Explore the Data

Vulnerable Counties | State Statistics

Most Vulnerable Counties

The CDC has identified 220 counties at risk of outbreaks of HIV and/or hepatitis C as a result of the opioid epidemic. These represent only the top 5% of counties in the nation based on 6 factors assessed. Health officials responsible for these counties should be particularly sensitive to ensure targeted, evidence-based interventions and services are available. The article abstract is available here.

Buchanan County	National Rank: 28
Dickenson County	National Rank: 29
Russell County	National Rank: 61
Lee County	National Rank: 73
Wise County	National Rank: 78
Tazewell County	National Rank: 96
Patrick County	National Rank: 166
Wythe County	National Rank: 210

State Opioid Policies

Several policies can mitigate the impact of increased opioid use. These include legislation permitting the operation of syringe exchange programs, good samaritan laws that provide legal protections to bystanders who call for help in the event of an overdose, and state Medicaid coverage of methadone for the treatment of opioid use disorder. In addition, states experiencing, or at an elevated risk of, experiencing HIV or hepatitis outbreaks may use federal DHHS funds to support syringe service programs. In order to be eligible to do so, state, local, tribal, and territorial health departments must consult with CDC and provide evidence demonstrating risk.

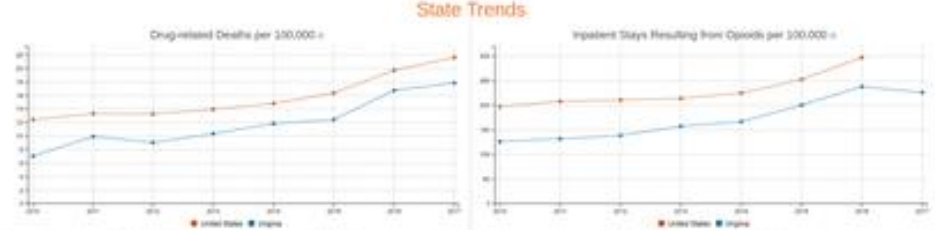
Individual Counties have Completed CDC Consultation (2020)

Syringe Exchange Programs are Legal (2019)

Good Samaritan Law Does Not Protect from Parole/Probation Violations (2018)

State Medicaid Program does Cover Methadone (2017)

State Trends



Federal Funding to Virginia

SAMHSA

CDC

HRSA

HOPWA

Virginia - VDH Opioid Indicators - HCV

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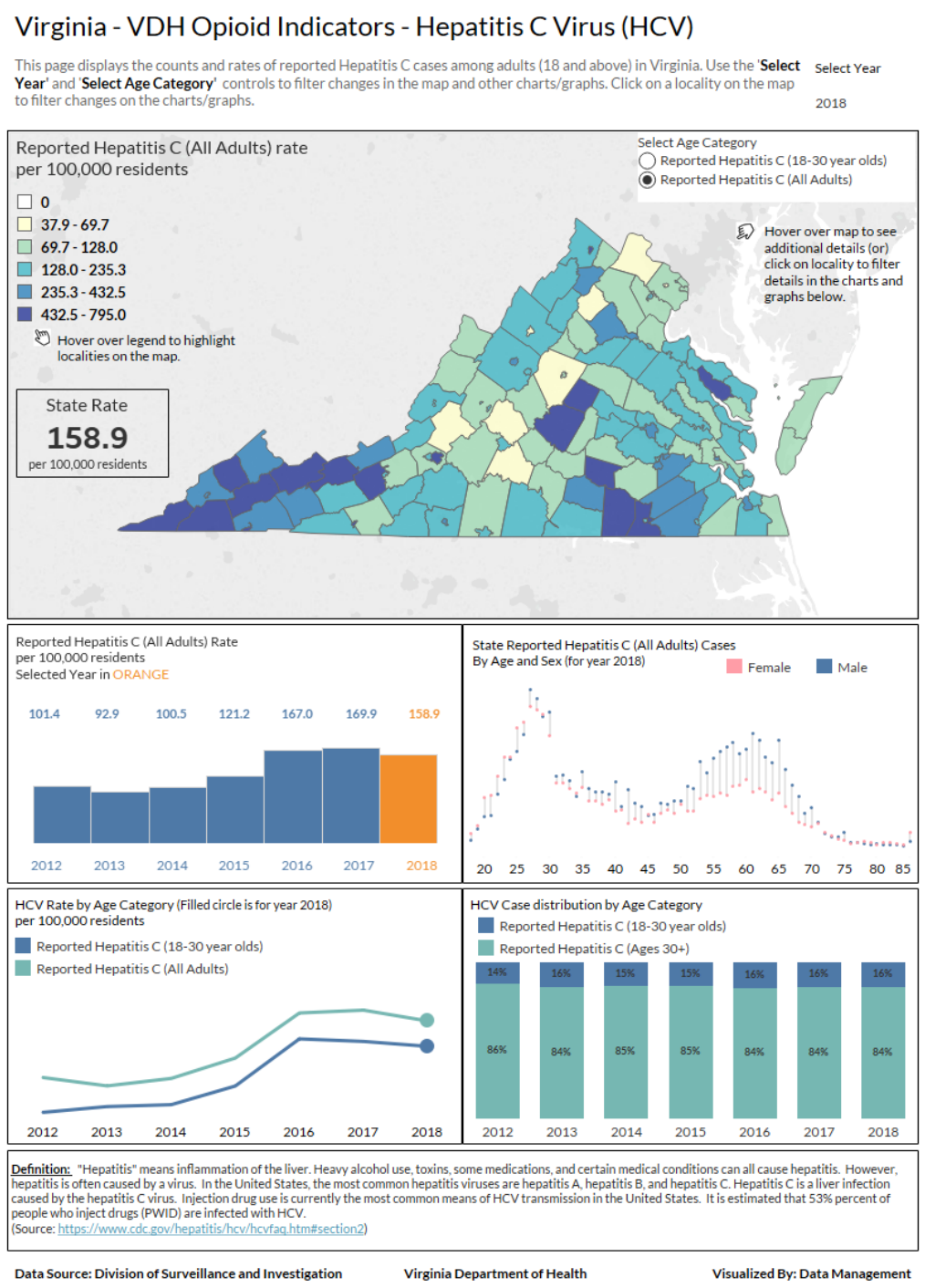

Virginia - VDH Opioid Indicators - HCV

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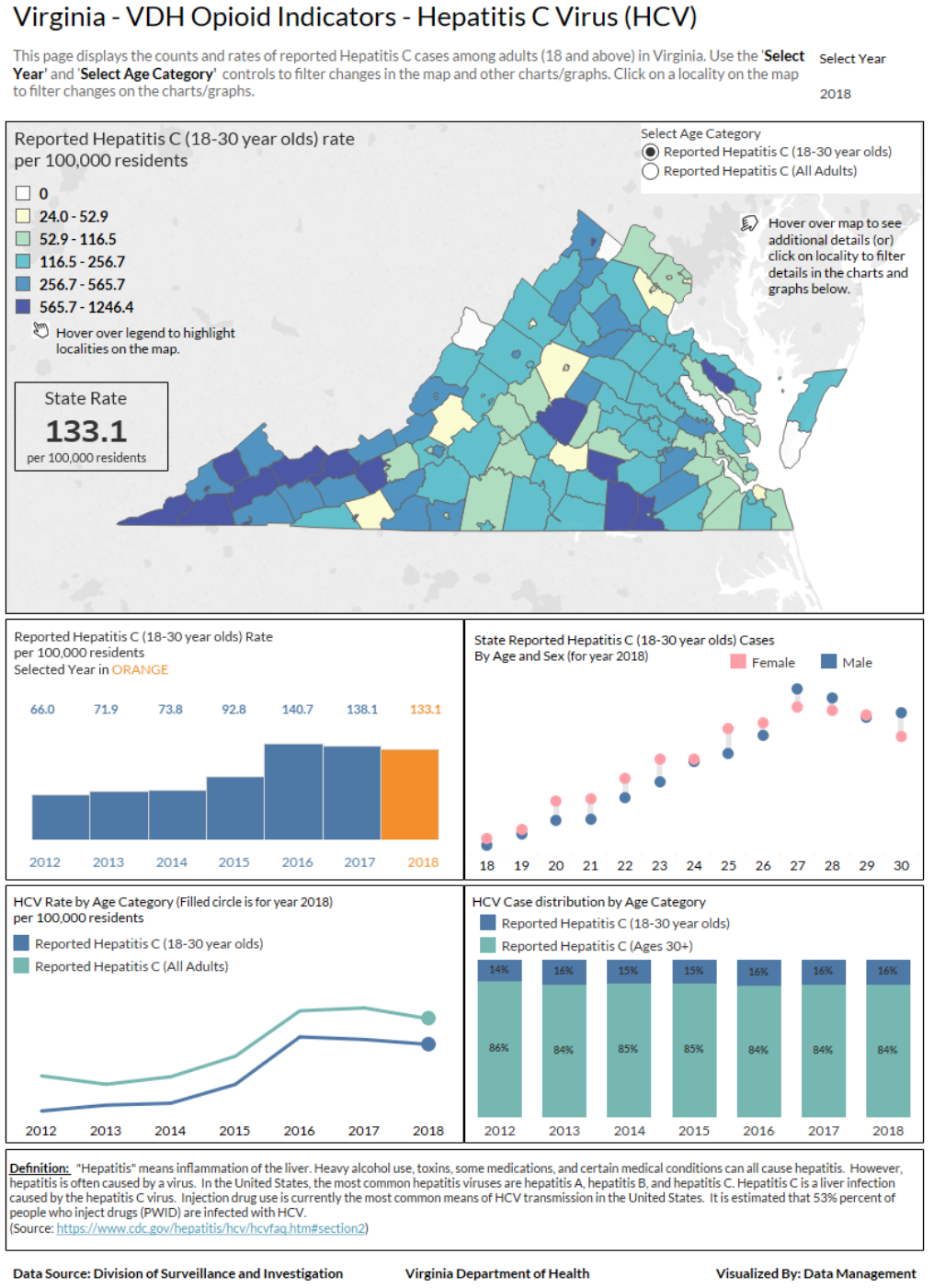

HCV Mortality

Clinical Infectious Diseases

BRIEF REPORT

IDSA hivma

Rising Mortality Associated With Hepatitis C Virus in the United States, 2003–2013

Kathleen N. Ly, Elizabeth M. Hughes, Ruth B. Jiles, and Scott D. Holmberg

Division of Viral Hepatitis, Centers for Disease Control and Prevention, Atlanta, Georgia

In the United States, hepatitis C virus (HCV)–associated mortality is increasing. From 2003–2013, the number of deaths associated with HCV has now surpassed 60 other nationally notifiable infectious conditions combined. The increasing HCV-associated mortality trend underscores the urgency in finding, evaluating, and treating HCV-infected persons.

Keywords. hepatitis C; mortality trends; death certificates; causes of death.

Despite enthusiasm for the new curative, brief (12-week), all-oral antiviral treatments for hepatitis C virus (HCV) infection, the continued health burden [1] and increased mortality [2] for HCV-infected patients in the United States remain underappreciated. We examined national multiple-cause-of-death (MCOD) data from 2003 to 2013 to provide more current estimates of trends in hepatitis C–related mortality in the United States and compared these with trends in deaths associated with 60 other nationally notifiable infectious conditions (ONNICs) that are routinely reported to the Centers for Disease Control and Prevention (CDC).

METHODS

Death certificate information from the public-use MCOD data, obtained from the National Center for Health Statistics, was examined. Mortality codes for 2 disease categories, hepatitis C and ONNICs, as classified by the *International Classification of Diseases, 10th Revision (ICD-10)* [3], were examined. Deaths associated with hepatitis C were defined as having the *ICD-10* codes B17.1 and B18.2 listed in the "record axis" MCOD fields. Deaths associated with ONNICs [4] were defined as having any of the *ICD-10* codes associated with 60 conditions (see Supplementary Appendix) recorded in the "record axis" MCOD fields. To ensure mutual exclusivity between the 2 disease categories, any ONNIC-related death that also had a listing of hepatitis C was excluded from the ONNICs category, which was, on average, 1067 deaths (range, 936–1193) per year.

To calculate mortality rates, the number of deaths associated with HCV infection and ONNICs were divided by the total US census population for each year and then adjusted to the age distribution of the standard US population in 2000 by using the direct method [5]. Ninety-five percent confidence intervals (CIs) were calculated based on the gamma distribution to estimate the variance [6]. Trends in age-adjusted mortality rates were analyzed using joinpoint regression [7]. The resulting trends were described by the slope of the line segment or annual percentage change by applying the least-squares linear regression method.

RESULTS

From 2003 to 2013, the number of deaths associated with hepatitis C listed on death certificates increased from 11 051 in 2003 to 19 368 in 2013 (Figure 1). These deaths represented an average annual increase of 865 deaths per year, and the average annual percentage increase was 6.2% ($P < .05$). In comparison, the number of deaths associated with ONNICs, 60 conditions in all, decreased from 24 745 in 2003 to 17 915 in 2013 (see Supplementary Appendix for listing of deaths in 2013 by specific infectious condition). These deaths represented an average annual decrease of 718 deaths per year (Figure 1), and the average annual percentage decrease was 3.4% ($P < .05$). The decline in ONNIC-related deaths was mostly due to a decline in human immunodeficiency virus (HIV)–related deaths, and, to a lesser extent, a decline in pneumococcal disease–related and tuberculosis-related deaths. The number of HIV-related deaths declined by 41.8% from 15 168 deaths in 2003 to 8831 deaths in 2013. Pneumococcal disease–related deaths decreased by 31.0% from 1283 deaths in 2003 to 885 deaths in 2013; tuberculosis-related deaths decreased by 28.2% from 1382 deaths in 2003 to 992 deaths in 2013. When combined, these 3 conditions were associated with a 39.9% decline from 17 764 deaths in 2003 to 10 683 deaths in 2013.

In 2012, the number of deaths associated with hepatitis C surpassed that of 60 ONNICs that are routinely reported to CDC (Figure 1). The mortality rate, as opposed to the crude number of deaths, associated with hepatitis C increased from 3.72 (95% CI, 3.65–3.79) deaths per 100 000 population in 2003 to 5.03 (95% CI, 4.96–5.11) deaths per 100 000 population in 2013. These mortality rates represent an average annual increase of 0.14 deaths per 100 000 population per year, and the average annual percentage increase was 3.4% ($P < .05$). In comparison, the mortality rate associated with ONNICs decreased from 8.51 (95% CI, 8.41–8.62) deaths per 100 000 population in 2003 to 5.25 (95% CI, 5.17–5.33) deaths per 100 000

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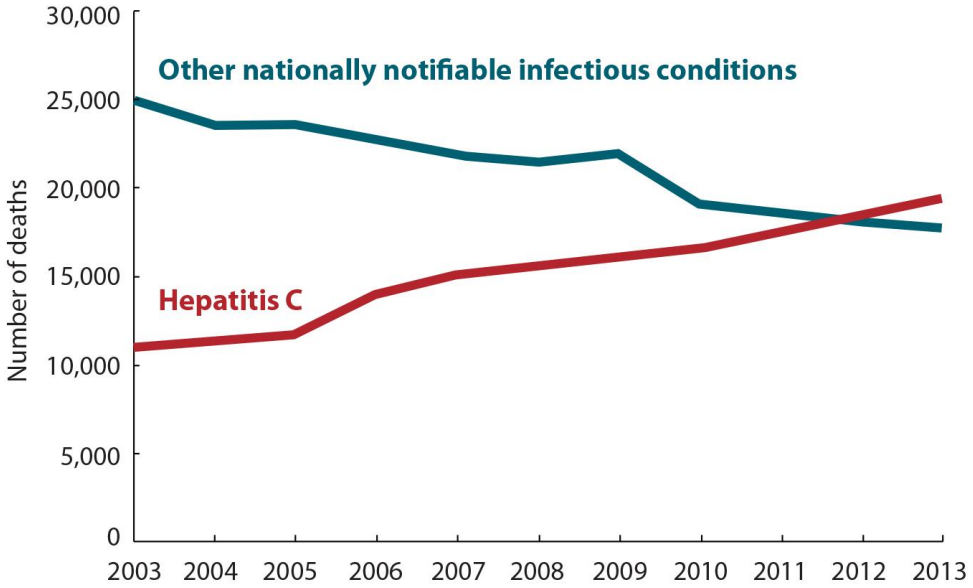
Annual number of hepatitis C-related deaths vs. other nationally notifiable infectious conditions in the US, 2003-2013



Source: Centers for Disease Control and Prevention

Treatment as Prevention

HEPATOLOGY
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The Continuum of Hepatitis C Testing and Care

Kendra Viner, Danica Kuncio, E. Claire Newbern, and Caroline C. Johnson

HEPATOLOGY, Vol. 61, No. 3, 2015

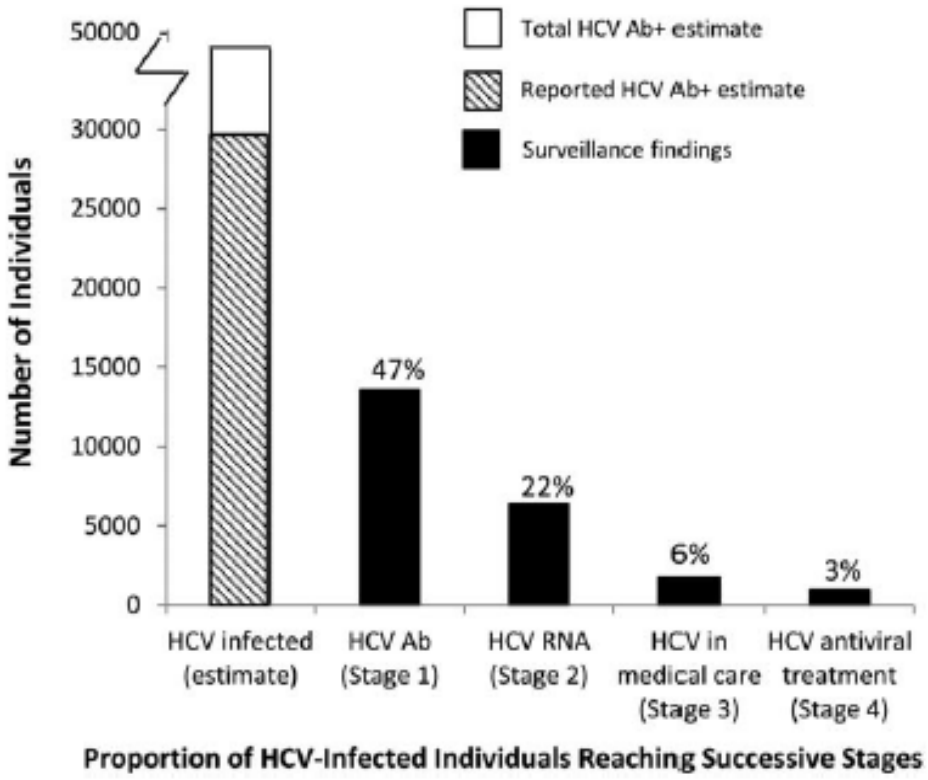

Fig. 1. The continuum of hepatitis C testing, referral to care, and treatment in Philadelphia from January 2010 to December 2013.

Table 1. Demographics of Individuals at Each Stage in the Continuum of Hepatitis C Testing, Referral to Care, and Treatment in Philadelphia, January 2010 to December 2013

			Stages of HCV Testing and Care				
			Stage 1	Stage 2	Stage 3	Stage 4	
				In Care			
					Yes		
Demographics		Total (N = 13,596)	Ab only N=7,213	No Ab+RNA (N = 4,638)	No Antiviral Treatment Ab+RNA (N = 1,506)	Antiviral Treatment* Ab+RNA (N = 239)	*P* Value
Gender	Male	8,467 (62)	4,392 (61)	2,947 (64)	958 (64)	170 (71)	<0.001
	Female	5,129 (38)	2,821 (39)	1,691 (36)	548 (36)	69 (29)	
	Unknown	0	0	0	0	0	
Age group	<1	176 (2)	123 (2)	44 (<1)	9 (<1)	0	<0.001
	1-18	178 (1)	99 (1)	67 (1)	12 (1)	0	
	19-30	2,093 (15)	1,366 (19)	597 (13)	113 (8)	17 (7)	
	31-44	2,661 (20)	1,619 (22)	811 (17)	196 (13)	35 (14)	
	45-64	7,344 (54)	3,364 (47)	2,766 (60)	1,051 (70)	163 (68)	
	>64	353 (8)	642 (9)	353 (8)	125 (8)	24 (10)	
	Unknown	0	0	0	0	0	
Race/ethnicity	Black	838 (42)	279 (37)	339 (44)	121 (50)	99 (45)	<0.001
	White	849 (43)	371 (49)	312 (40)	81 (33)	85 (39)	
	Asian/Pacific Islander	47 (2)	11 (1)	18 (2)	10 (4)	8 (4)	
	Hispanic	78 (4)	27 (4)	35 (4)	12 (5)	4 (2)	
	Other	179 (9)	63 (8)	73 (19)	19 (8)	24 (11)	
	Unknown	11,605	6,462	3,859	1,262	18	
Born in United States	Yes	669 (86)	93 (82)	276 (85)	130 (88)	170 (86)	0.57
	No	113 (14)	20 (18)	48 (15)	17 (12)	28 (14)	
	Unknown	12,814	7,100	4,314	1,359	41	

*2013 data only.

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Hepatitis C Cascade of Care among People Who Inject Drugs in Vancouver, Canada

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Abstract

Background: People who inject drugs (PWID) have high rates of Hepatitis C Virus (HCV) infection. Little is known about the rates of diagnosis and treatment for HCV among PWID. Therefore, this study aims to characterize the cascade of care in Vancouver, Canada to improve HCV treatment access and delivery for PWID.

Methods: Data were derived from three prospective cohort studies of PWID in Vancouver, Canada between December 2005 and May 2015. We identified the progression of participants through five steps in the cascade of care: (1) chronic HCV; (2) linkage to HCV care; (3) liver disease assessment; (4) initiation of treatment; and (5) completion of treatment. Predictors of undergoing liver disease assessment for HCV treatment were identified using a multivariable extended Cox regression model.

Results: Among 1571 participants with chronic HCV, 1359 (86.5%) had ever been linked to care, 1257 (80.0%) had undergone liver disease assessment, 163 (10.4%) had ever started HCV treatment, and 71 (4.5%) had ever completed treatment. In multivariable analyses, HIV seropositivity, use of methadone maintenance therapy, and hospitalization in the past 6 months were independently and positively associated with undergoing liver disease assessment (all $P < 0.001$), while daily heroin injection was independently and negatively associated with undergoing liver disease assessment ($P < 0.001$).

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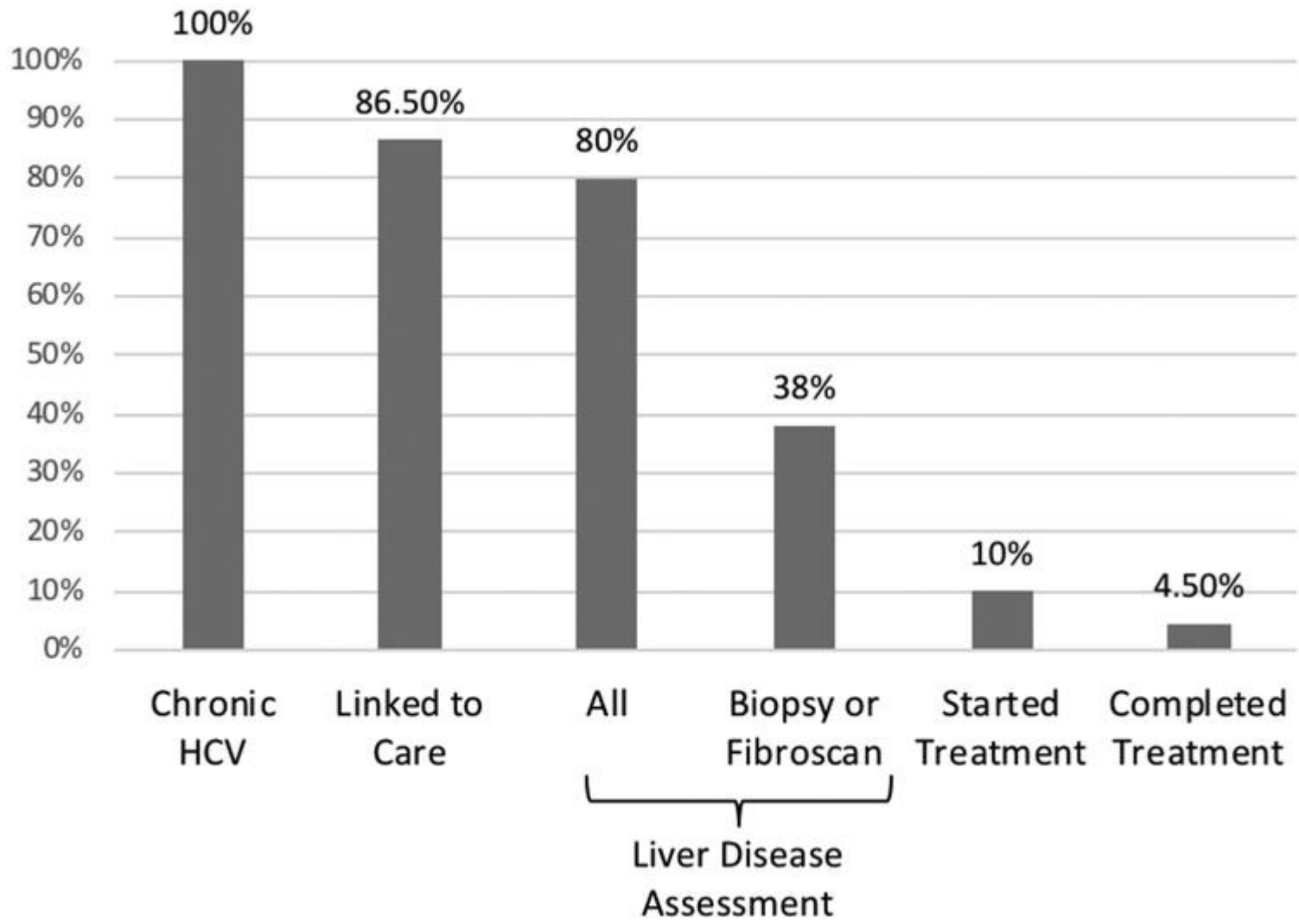
AUTHOR CONTRIBUTIONS

KH, MJM, KD, EW and TK designed and managed the cohorts. SY and KH designed the p re se n t study. SY drafted the initial manuscript and incorporated revisions. SD and EN ran the statistical analyses and aided in conceptualization of methods. All authors reviewed and approved the final manuscript.



Barriers to Treatment Uptake (PWID)

- Individual
  - Unknown status
  - Lack of knowledge that treatment cures
  - Fear of side effects, stigmatization
  - Mistrust of health care system
- Health Provider
  - Concern regarding adherence, reinfection
  - Coexisting mental health diagnoses or active drug use
  - Lack of HCV Tx knowledge
- System Many
  - Insurance status
  - Limited services/expertise in the system
  - Complicated PA for medication

HEPATITIS C & INJECTION DRUG USE

What is Hepatitis C?

Hepatitis C is a serious liver disease caused by the Hepatitis C virus. Some people get only a short term, or acute, infection and are able to clear the virus without treatment. If someone clears the virus, this usually happens within 6 months after infection. However, about 80% of people who get infected develop a chronic, or lifelong, infection. Over time, chronic Hepatitis C can cause serious health problems including liver damage, liver failure, and even liver cancer.

What are the symptoms?

Symptoms of Hepatitis C can include: fever, feeling tired, not wanting to eat, upset stomach, throwing up, dark urine, grey-colored stool, joint pain, and yellow skin and eyes. However, many people who get Hepatitis C do not have symptoms and do not know they are infected. If symptoms occur with acute infection, they can appear anytime from 2 weeks to 6 months after infection. Symptoms of chronic Hepatitis C can take decades to develop, and when symptoms do appear, they often are a sign of advanced liver disease.

Should I get tested?

Yes. If you have ever injected drugs, you should get tested for Hepatitis C. If you are currently injecting, talk to your doctor about how often you should be tested.

The Hepatitis C Antibody Test is a blood test that looks for antibodies to the Hepatitis C virus. A reactive or positive Hepatitis C Antibody Test means that a person has been infected at some point in time. Unlike HIV, a reactive antibody test **does not** necessarily mean a person still has Hepatitis C. An additional blood test called a RNA test is needed to determine if a person is currently infected with Hepatitis C.

All equipment used to prepare and inject drugs can spread Hepatitis C when contaminated and shared.

How is Hepatitis C spread among people who inject drugs?

The Hepatitis C virus is very infectious and can easily spread when a person comes into contact with surfaces, equipment, or objects that are contaminated with infected blood, even in amounts too small to see. The virus can survive on dry surfaces and equipment for up to 6 weeks. People who inject drugs can get Hepatitis C from:

- **Needles & Syringes.** Sharing or reusing needles and syringes increases the chance of spreading the Hepatitis C virus. Syringes with detachable needles increase this risk even more because they can retain more blood after they are used than syringes with fixed-needles.
- **Preparation Equipment.** Any equipment, such as cookers, cottons, water, ties, and alcohol swabs, can easily become contaminated during the drug preparation process.
- **Fingers.** Fingers that come into contact with infected blood can spread Hepatitis C. Blood on fingers and hands can contaminate the injection site, cottons, cookers, ties, and swabs.
- **Surfaces.** Hepatitis C can spread when blood from an infected person contaminates a surface and then that surface is reused by another person to prepare injection equipment.

Continued on next page

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Are there other ways Hepatitis C can spread?

Hepatitis C can also spread when tattoo, piercing, or cutting equipment is contaminated with the Hepatitis C virus and used on another person. Although rare, Hepatitis C can be spread through sex. Hepatitis C seems to be more easily spread through sex when a person has HIV or a STD. People who have rough sex or numerous sex partners are at higher risk of getting Hepatitis C. Hepatitis C can also be spread from a pregnant woman to her baby.

Can Hepatitis C be prevented?

Yes. The best way to prevent Hepatitis C is to stop injecting. Drug treatment, including methadone or buprenorphine, can lower your risk for Hepatitis C since there will no longer be a need to inject.

However, if you are unable or unwilling to stop injecting drugs, there are steps you can take to reduce the risk of becoming infected.

- **Do not** share any equipment used to inject drugs with another person.
- **Always** use new, sterile needles, syringes and preparation equipment—cookers, cottons, water, ties, and alcohol swabs—for each injection.
- Set up a clean surface **before** placing down your injection equipment.
- **Do not** divide and share drug solution with equipment that has already been used.
- Avoid using syringes with detachable needles to reduce the amount of blood remaining in the syringe after injecting.
- Thoroughly wash hands with soap and water **before and after** injecting to remove blood or germs.
- Clean injection site with alcohol or soap and water **prior** to injecting.
- Apply pressure to injection site with a sterile pad to stop any bleeding after injecting.
- Only handle your own injection equipment. If you do inject with other people, separate your equipment from others to avoid accidental sharing.

Use new syringes and equipment with every injection.

The Hepatitis C virus is difficult to kill. The best way to prevent Hepatitis C is to use new, sterile syringes and equipment with every injection. If using a new syringe is not possible, bleach has been found to kill the Hepatitis C virus in syringes when used as a solution of one part bleach to 10 parts water for two minutes. Bleach, however, may not be effective when used to clean other types of equipment used to prepare or inject drugs. Although boiling, burning, or using common cleaning fluids, alcohol, or peroxide can reduce the amount of virus, this **may not** prevent you from getting infected. Cleaning previously used equipment and syringes should only be done if new, sterile equipment is not available.

Can Hepatitis C be treated?

Yes. New and improved treatments are available that can cure most people with Hepatitis C. Most of the new treatments are taken as pills and do not require interferon injections. However, treatment for Hepatitis C depends on many different factors, so it is important to talk to a doctor about options.

Can someone get re-infected with Hepatitis C?

Yes. Someone who clears the virus, either on their own or from successful treatment, can become infected again.

Does injecting put you at risk for other types of hepatitis?

Yes. People who inject are more likely to get Hepatitis A and Hepatitis B. Getting vaccinated for Hepatitis A and B will prevent these types of hepatitis. There is currently no vaccine for Hepatitis C.

For More Information

Talk to your health professional, call your health department, or visit www.cdc.gov/hepatitis.

Updated 2016

Annals of Internal Medicine

Elbasvir-Grazoprevir to Treat Hepatiti
Receiving Opioid Agonist Therapy
A Randomized Trial

Gregory J. Dore, MD; Frederick Altice, MD; Alain H. Litwin, MD; Olav
Anne Luetkemeyer, MD; Ronald Nahass, MD; Cheng-Yuan Peng, MD;
Anita Y.M. Howe, PhD; Isaias N. Gendrano, MPH; Erluo Chen, MPH; H
David C. Nickle, PhD; Bach-Yen Nguyen, MD; Janice Wahl, MD; Eliav
Heather L. Platt, MD; on behalf of the C-EDGE CO-STAR Study Group

Background: Hepatitis C virus (HCV) infection is common in persons who inject drugs (PWID).

Objective: To evaluate elbasvir–grazoprevir in treating HCV infection in PWID.

Design: Randomized, placebo-controlled, double-blind trial. (ClinicalTrials.gov: NCT02105688)

Setting: Australia, Canada, France, Germany, Israel, the Netherlands, New Zealand, Norway, Spain, Taiwan, the United Kingdom, and the United States.

Patients: 301 treatment-naive patients with chronic HCV genotype 1, 4, or 6 infection who were at least 80% adherent to visits for opioid agonist therapy (OAT).

Intervention: The immediate-treatment group (ITG) received elbasvir–grazoprevir for 12 weeks; the deferred-treatment group (DTG) received placebo for 12 weeks, no treatment for 4 weeks, then open-label elbasvir–grazoprevir for 12 weeks.

Measurements: The primary outcome was sustained virologic response at 12 weeks (SVR12), evaluated separately in the ITG and DTG. Other outcomes included SVR24, viral recurrence or reinfection, and adverse events.

Results: The SVR12 was 91.5% (95% CI, 86.8% to 95.0%) in the ITG and 89.5% (95% CI, 81.5% to 94.8%) in the active phase of the DTG. Drug use at baseline and during treatment did not

thebmj

BMJ 2016;354:i4346 doi: 10.1136/bmj.i4346 (Published 9 August 2016)

RESEARCH NEWS

Curative hepatitis C treatment is effective in drug users, trial shows

Susan Mayor

London

Patients with hepatitis C infection being treated for opioid addiction have high rates of virologic response to oral, once daily treatment with a fixed combination of elbasvir and grazoprevir regardless of ongoing drug use, a randomised trial has shown.[1]

Injecting drug users are the main group affected by hepatitis C in high income countries, but most trials of antiviral therapies have excluded people with recent injection drug use.

The new trial included 301 people with chronic hepatitis C infection (virus genotypes 1, 4, or 6) who were at least 80% adherent to visits for opioid agonist treatment. They were randomly allocated to immediate treatment with elbasvir (an NS5A inhibitor) plus grazoprevir (an NS3/4A protease inhibitor) for 12 weeks or to deferred treatment with placebo for 12 weeks, followed by elbasvir-grazoprevir for 12 weeks after a wash-out period of no treatment for four weeks.

The results, published in *Annals of Internal Medicine*,[1] showed that 91.5% (95% confidence interval 86.8% to 95.0%) of patients given immediate treatment and 89.5% (81.5% to 94.8%) of the deferred treatment group achieved sustained virologic response (undetectable levels of hepatitis C virus) at 12 weeks.

Drug use at baseline and during treatment did not affect sustained virologic response at 12 weeks or adherence to hepatitis C treatment in the study, which was funded by Merck & Co. More than half of the patients in each group tested positive for at least one potential drug of misuse, including methadone, at each visit during the trial.

"These results support the removal of drug use as a barrier to interferon-free HCV [hepatitis C virus] treatment for patients receiving oral opioid agonist therapy," said the research group, led by Gregory Dore, of the Kirby Institute at the University of New South Wales, Australia.

1 Dore GJ, Altice F, Litwin AH, et al. Elbasvir-grazoprevir to treat hepatitis C virus infection in persons receiving opioid agonist therapy: a randomized, controlled trial. *Ann Intern Med* 2016. doi:10.7326/M16-0816.

ccepted: 17 June 2019

JVH WILEY

nd support for people who inject drugs
tiviral therapy for hepatitis C infection

1 | John Kearley[1] | Rebecca Lothian[1] |
J. Chronister[1] | Gregory J. Dore[2]

tract
mmunity-based public health facility in Sydney, Australia, the Kirketon Road re (KRC), provides health care to people who inject drugs (PWID), homeless other marginalized people. Since March 2016, KRC has provided treatment for nic hepatitis C virus (HCV) with direct-acting antivirals (DAAs). We aimed to uate treatment adherence amongst clients taking DAAs in a highly marginalized ulation. All clients who commenced DAA therapy prior to March 2018 at KRC included in this observational cohort with a subset of clients attending daily or kly for enhanced adherence support and dosing. Demographic, behavioural, clinmeasures and medication dosing were recorded, and adherence was calculated e proportion of doses taken during the expected treatment duration. Factors ciated with adherence were examined using logistic regression. A total of 242 viduals commenced DAA therapy, of whom 79 (32%) received enhanced adher- support. Enhanced support was associated with homelessness, daily injecting, riginality, mental health co-morbidity and poly-drug use (all $P < .001$). Overall erence was 86%, and 92% of patients missed one or more doses (median 10, 4-24). At least 90% adherence during planned duration was seen in 38%, but eased to 66% by continuing therapy beyond planned duration. Intention-to-treat 12 was 68% and 66% in the enhanced adherence support sub-population, with lost to follow-up by SVR12 testing. There were only 2 (0.8%) documented vigical failures. Per-protocol SVR12 was 99% and 96% in the enhanced adherence ort sub-population. In conclusion, adherence support may benefit those with iple markers of marginalization. Extension of therapy beyond planned duration pragmatic strategy to enhance completion. Strategies to improve follow-up, parly post-treatment are required.

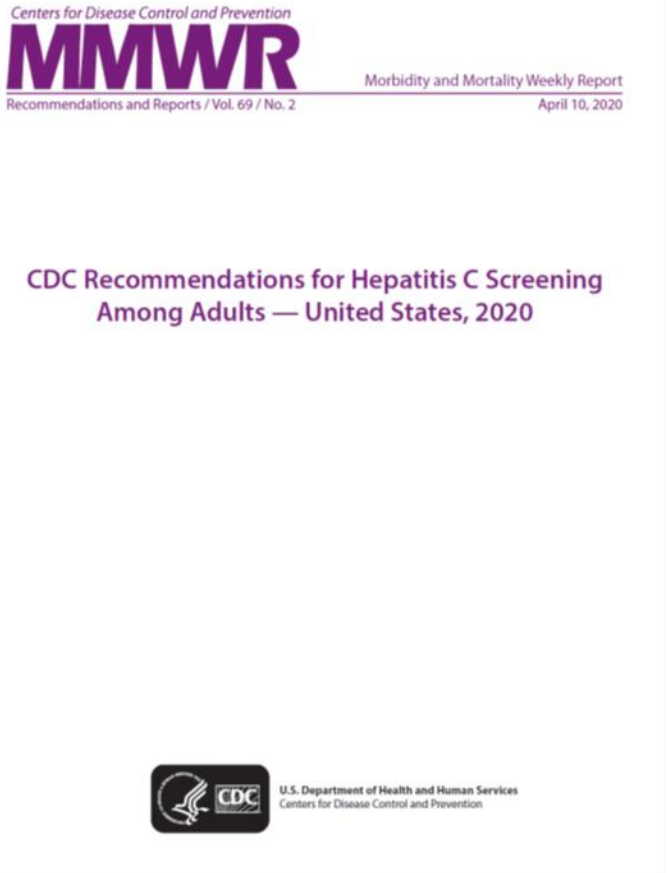
WORDS
rence, antivirals, hepatitis C virus (HCV), people who inject drugs

ivirals; GEE, Generalised estimating equation; HCV, hepatitis C virus; KRC, Kirketon Road Centre; OAT, opioid agonist

DMAS HCV Policy Changes

- No sobriety restrictions
- No liver damage restrictions
- Generalists and specialists can prescribe
- Mavyret (glecaprevir/pibrentasvir) and Epclusa (sofosbuvir/velpatasvir) available with abridged prior authorization form
- Preferred Office Based Opioid Treatment Programs now asked to implement universal screening and referral for HCV

USPSTF HCV Guideline Screening Recommendations



BOX 1. Persons recommended for hepatitis C testing

- Universal hepatitis C screening:
  - Hepatitis C screening at least once in a lifetime for all adults aged ≥18 years, except in settings where the prevalence of HCV infection (HCV RNA-positivity) is <0.1%
  - Hepatitis C screening for all pregnant women during each pregnancy, except in settings where the prevalence of HCV infection (HCV RNA-positivity) is <0.1%
- One-time hepatitis C testing regardless of age or setting prevalence among persons with recognized risk factors or exposures:
  - Persons with HIV
  - Persons who ever injected drugs and shared needles, syringes, or other drug preparation equipment, including those who injected once or a few times many years ago
  - Persons with selected medical conditions, including persons who ever received maintenance hemodialysis and persons with persistently abnormal ALT levels
  - Prior recipients of transfusions or organ transplants, including persons who received clotting factor concentrates produced before 1987, persons who received a transfusion of blood or blood components before July 1992, persons who received an organ transplant before July 1992, and persons who were notified that they received blood from a donor who later tested positive for HCV infection
  - Health care, emergency medical, and public safety personnel after needle sticks, sharps, or mucosal exposures to HCV-positive blood
  - Children born to mothers with HCV infection
- Routine periodic testing for persons with ongoing risk factors, while risk factors persist:
  - Persons who currently inject drugs and share needles, syringes, or other drug preparation equipment
  - Persons with selected medical conditions, including persons who ever received maintenance hemodialysis
- Any person who requests hepatitis C testing should receive it, regardless of disclosure of risk, because many persons might be reluctant to disclose stigmatizing risks

WHO SHOULD GET TESTED FOR HEPATITIS C?

EVERY ADULT

At least once

EVERY PREGNANT WOMAN

Every pregnancy

EVERYONE WITH RISK FACTORS

Regularly

SOURCE: CDC Recommendations for Hepatitis C Screening, *MMWR*, April 2020

USPSTF HCV Guideline Screening Recommendations

Centers for Disease Control and Prevention
MMWR
Morbidity and Mortality Weekly Report
Recommendations and Reports / Vol. 69 / No. 2
April 10, 2020

CDC Recommendations for Hepatitis C Screening Among Adults — United States, 2020

BOX 2. Management of persons with HCV infection

- Medical evaluation (by either a primary-care clinician or specialist [e.g., in hepatology, gastroenterology, or infectious disease]) for chronic liver disease, including treatment and monitoring
- Hepatitis A and hepatitis B vaccination
- Screening and brief intervention for alcohol consumption
- Avoiding new medicines, including over-the-counter and herbal agents, without first checking with their health care provider
- HIV risk assessment and testing
- Weight management or losing weight and following a healthy diet and staying physically active for persons who are overweight (BMI ≥25kg/m^2) or obese (BMI ≥30kg/m^2)
- Avoiding or stopping donating blood, tissue, or semen
- Refraining from sharing appliances that might come into contact with blood, such as toothbrushes, dental appliances, razors, nail clippers, glucose meters, and lancet devices.

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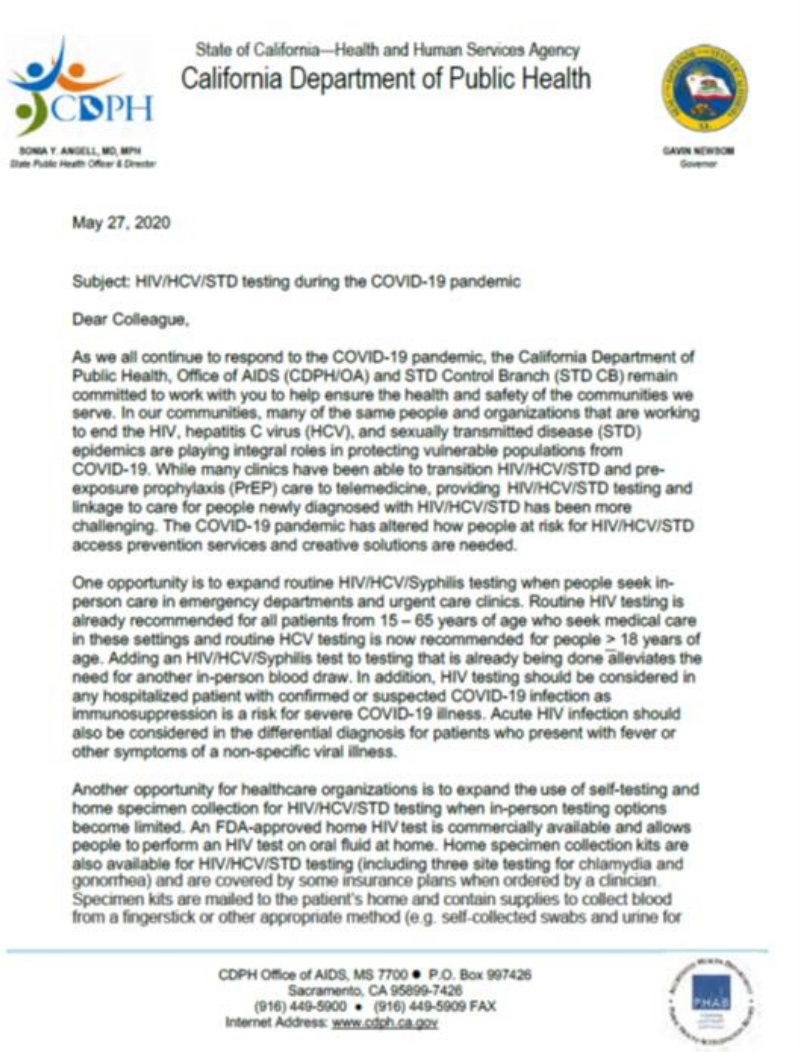
HIV/HCV/STI Testing during COVID-19 pandemic



State of California—Health and Human Services Agency
California Department of Public Health

SONIA Y. ANGELL, MD, MPH
State Public Health Officer & Director

GAVIN NEWSOM
Governor

May 27, 2020

Subject: HIV/HCV/STD testing during the COVID-19 pandemic

Dear Colleague,

As we all continue to respond to the COVID-19 pandemic, the California Department of Public Health, Office of AIDS (CDPH/OA) and STD Control Branch (STD CB) remain committed to work with you to help ensure the health and safety of the communities we serve. In our communities, many of the same people and organizations that are working to end the HIV, hepatitis C virus (HCV), and sexually transmitted disease (STD) epidemics are playing integral roles in protecting vulnerable populations from COVID-19. While many clinics have been able to transition HIV/HCV/STD and pre-exposure prophylaxis (PrEP) care to telemedicine, providing HIV/HCV/STD testing and linkage to care for people newly diagnosed with HIV/HCV/STD has been more challenging. The COVID-19 pandemic has altered how people at risk for HIV/HCV/STD access prevention services and creative solutions are needed.

One opportunity is to expand routine HIV/HCV/Syphilis testing when people seek in-person care in emergency departments and urgent care clinics. Routine HIV testing is already recommended for all patients from 15 – 65 years of age who seek medical care in these settings and routine HCV testing is now recommended for people ≥ 18 years of age. Adding an HIV/HCV/Syphilis test to testing that is already being done alleviates the need for another in-person blood draw. In addition, HIV testing should be considered in any hospitalized patient with confirmed or suspected COVID-19 infection as immunosuppression is a risk for severe COVID-19 illness. Acute HIV infection should also be considered in the differential diagnosis for patients who present with fever or other symptoms of a non-specific viral illness.

Another opportunity for healthcare organizations is to expand the use of self-testing and home specimen collection for HIV/HCV/STD testing when in-person testing options become limited. An FDA-approved home HIV test is commercially available and allows people to perform an HIV test on oral fluid at home. Home specimen collection kits are also available for HIV/HCV/STD testing (including three site testing for chlamydia and gonorrhea) and are covered by some insurance plans when ordered by a clinician. Specimen kits are mailed to the patient's home and contain supplies to collect blood from a fingerstick or other appropriate method (e.g. self-collected swabs and urine for

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Internet Address: www.cdph.ca.gov

three site testing). The kit is then mailed back to the lab which performs the testing and returns results to the clinician.

Although providing access to HIV/HCV/STD testing has become more challenging, the benefits of knowing one's status and initiating early treatment continue. Indeed, if untreated HIV infection increases the risk of more severe COVID-19, then the benfits of testing and treatment initiation are greater than ever. OA and STD CB remain committed to moving forward with efforts to end the HIV/HCV/STD epidemic while considering the needs of the communities and individuals at risk for COVID-19 in every decision.

Sincerely,

Phil Peters, MD
Office of AIDS Division Medical Officer
Center for Infectious Diseases
California Department of Public Health

Kathleen Jacobson, MD
Chief, STD Control Branch
Center for Infectious Diseases
California Department of Public Health

Prevalence of Maternal Hepatitis C Virus Infection in Ohio

VOL. 132, NO. 3, SEPTEMBER 2018

Robert M. Rossi, MD, and Carri R. Warshak, MD

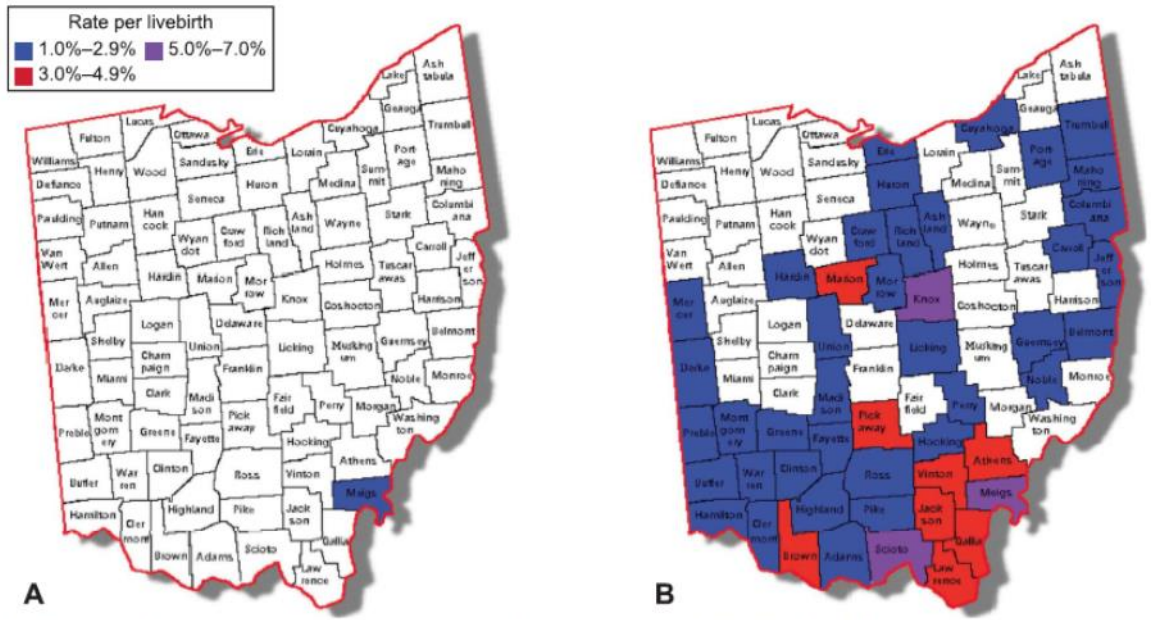
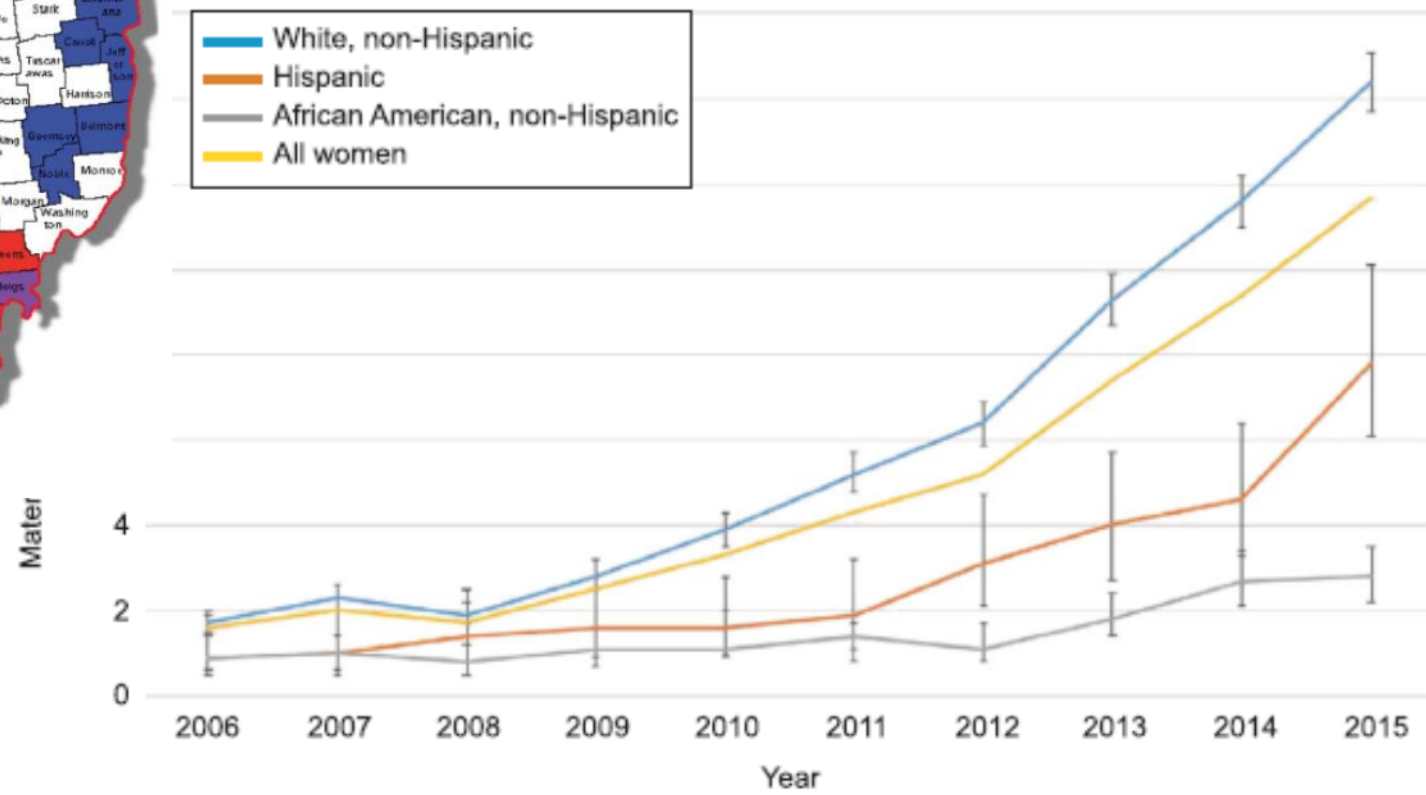


Fig. 2. Maternal hepatitis C virus infection rates in Ohio by county for 2006 (**A**) and 2015 (**B**).
Rossi. Maternal HCV Trends in Ohio. Obstet Gynecol 2018.



Maternal and Child Health Journal (2018) 22:1208–1216
https://doi.org/10.1007/s10995-018-2506-1

Hepatitis C Virus Knowledge Among P
Disorder

Elizabeth E. Krans[1,2] · Scott D. Rothenberger[3] · Penelope
Mary J. Turocy[2] · Susan Zickmund[5,6]

Published online: 3 March 2018

Abstract

Objectives To evaluate Hepatitis C virus (HCV) knowledge a
(OUD). *Methods* From May through November 2015, a one-t
women with OUD to assess their knowledge and awareness c
vention strategies, (c) hepatotoxic risk reduction and (d) peri
Chi square and Fisher's exact tests were used to compare den
pants who were HCV positive and negative. *Results* Of 179
the survey. Of these, 153 (90.5%) reported at least one risk
38 (44.7%) of HCV positive women were diagnosed with H
was evaluated, 114 (66.7%) responded that sharing eating ute
vaccine to prevent HCV and 56 (32.7%) did not identify intr
HCV positive women, 61 (71.8%) associated breastfeeding w
identify the importance of pediatric follow-up for HCV-expo
transmission as "likely" or "very likely." *Conclusions for Pr*
population of pregnant women with OUD. Healthcare provi
counseling during pregnancy.

Keywords Pregnancy · Hepatitis C virus · Opioid use disord

SUBSTANCE ABUSE
2016, VOL. 37, NO. 1, 88–95
http://dx.doi.org/10.1080/08897077.2015.1118720

Routledge
Taylor & Francis Group

ORIGINAL RESEARCH

Screening and evaluation of hepatitis C virus infection in pregnant women on opioid maintenance therapy: A retrospective cohort study

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ABSTRACT

Background: The purpose of this study was to describe the delivery of prenatal care services to women with opioid use disorder (OUD) on opioid maintenance therapy at high risk for hepatitis C virus (HCV) infection. *Methods*: We conducted a retrospective cohort evaluation of 791 pregnant women with OUD from 2009 to 2012. HCV screening was defined as documentation of (a) an anti-HCV antibody test or (b) a provider discussion regarding a known HCV diagnosis during pregnancy. Multivariate logistic regression was used to identify predictors of HCV screening during pregnancy. *Results*: Among 791 pregnant women with OUD, 611 (77.2%) were screened for HCV infection and 369/611 (60.4%) were HCV positive. In multivariable analysis, patients who were married (odds ratio [OR] = 0.52; 95% confidence interval [CI] = 0.29, 0.91), used buprenorphine (OR = 0.45; 95% CI = 0.28, 0.71), and were cared for by private practice providers (OR = 0.29; 95% CI = 0.19, 0.45) were significantly less likely to be screened. In contrast, patients who used benzodiazepines (OR = 1.72; 95% CI = 1.02, 2.92), intravenous (IV) opioids (OR = 6.15; 95% CI = 3.96, 9.56), had legal problems (OR = 2.23; 95% CI = 1.12, 4.45), had children not in their custody (OR = 1.81; 95% CI = 1.01, 3.24), and who had a partner with substance abuse history (OR = 2.38; 95% CI = 1.23, 4.59) were significantly more likely to be screened. Of 369 HCV-positive patients, a new diagnosis of HCV was made during pregnancy for 108 (29.3%) patients. Only 94 (25.5%) had HCV viral load testing, 61 (16.5%) had HCV genotype testing, and 38 (10.4%) received an immunization for hepatitis A. Although 285 (77.2%) patients were referred to hepatology, only 71 (24.9%) attended the consultation. Finally, only 6 (1.6%) patients received HCV treatment 1 year following delivery. *Conclusions*: Prenatal care approaches to HCV infection remain inconsistent, and the majority of patients diagnosed with HCV infection during pregnancy do not receive treatment after delivery.

KEYWORDS
Hepatitis C virus; opioid dependence; pregnancy; prenatal care screening

Hepatitis C Testing Among Perinatally Exposed Infants

Susan M. Lopata, MD,[a,b] Elizabeth McNeer, MS,[c,d] Judith A. Dudley, BS,[e] Carolyn Wester, MD, MPH,[f] William O. Cooper, MD, MPH,[a,c,e] James G. Carlucci, MD, MPH,[a,g] Claudia M. Espinosa, MD, MSch,[h,i] William Dupont, PhD,[d,e] Stephen W. Patrick, MD, MPH, MS[a,b,c,e]

abstract

BACKGROUND: Hepatitis C virus (HCV) prevalence doubled among pregnant women from 2009 to 2014, reaching 3.4 per 1000 births nationwide. Infants exposed to HCV may acquire HCV by vertical transmission. National guidelines recommend that infants exposed to HCV be tested; however, it is unclear if these recommendations are being followed. Our objectives were to determine if infants exposed to HCV were tested and to determine hospital- and patient-level factors associated with differences in testing.

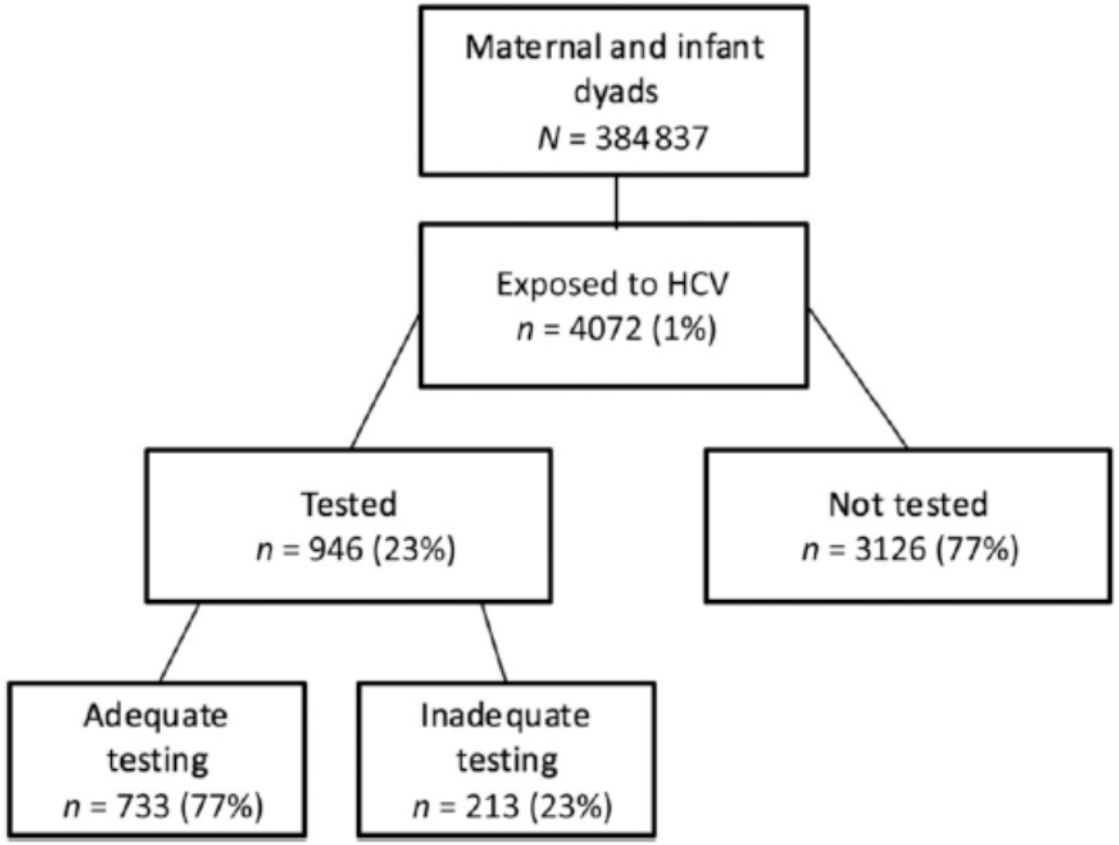
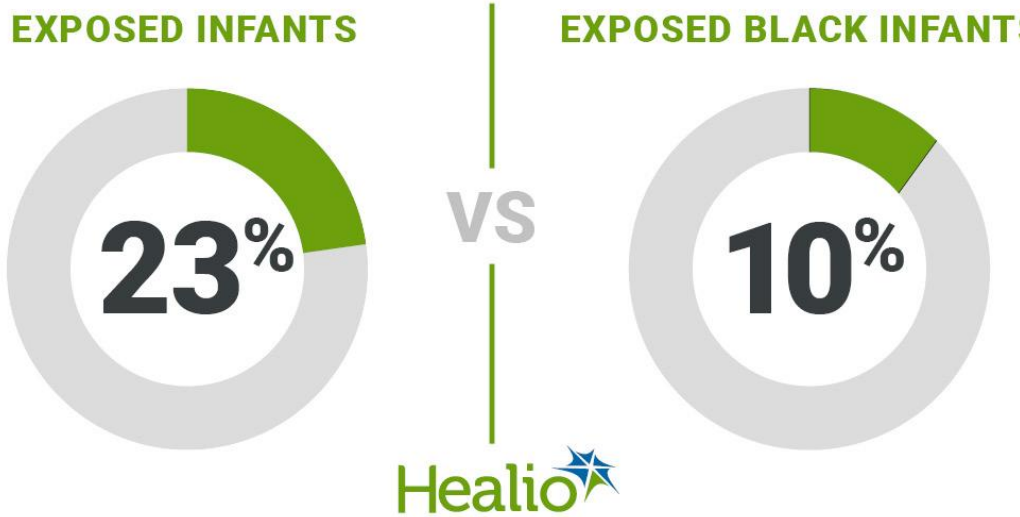


FIGURE 2
Testing of infants exposed to HCV.

Percentage of infants tested for HCV in Tennessee



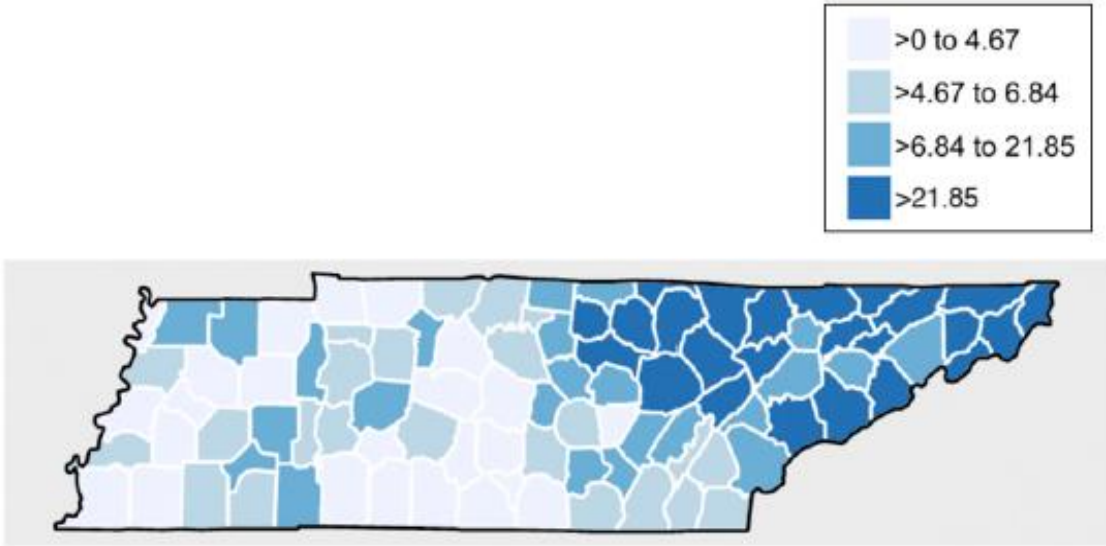


FIGURE 1
Number of infants exposed to HCV per 1000 live births in Tennessee by county, 2005–2014.

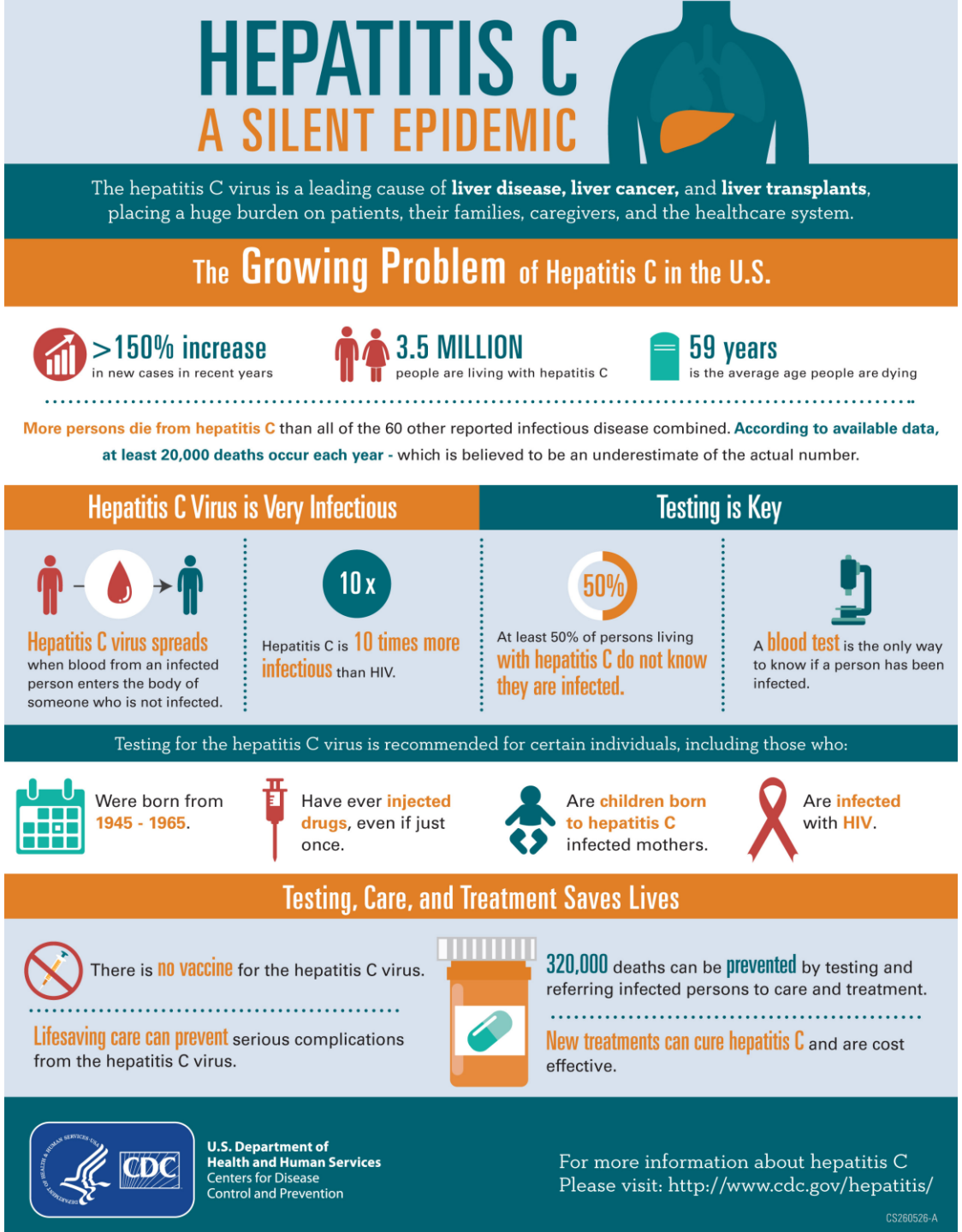
HCV Summary

Particular Care Needed:

PWID

During Pregnancy

Especially Postpartum



Managing HIV and Hepatitis C Outbreaks Among People Who Inject Drugs

A GUIDE FOR STATE AND LOCAL HEALTH DEPARTMENTS

March 2018

Version 1.0

National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention
Division of HIV/AIDS Prevention

CS287892-A

The American Association for the Study of Liver Diseases and the Infectious Diseases Society of America Present

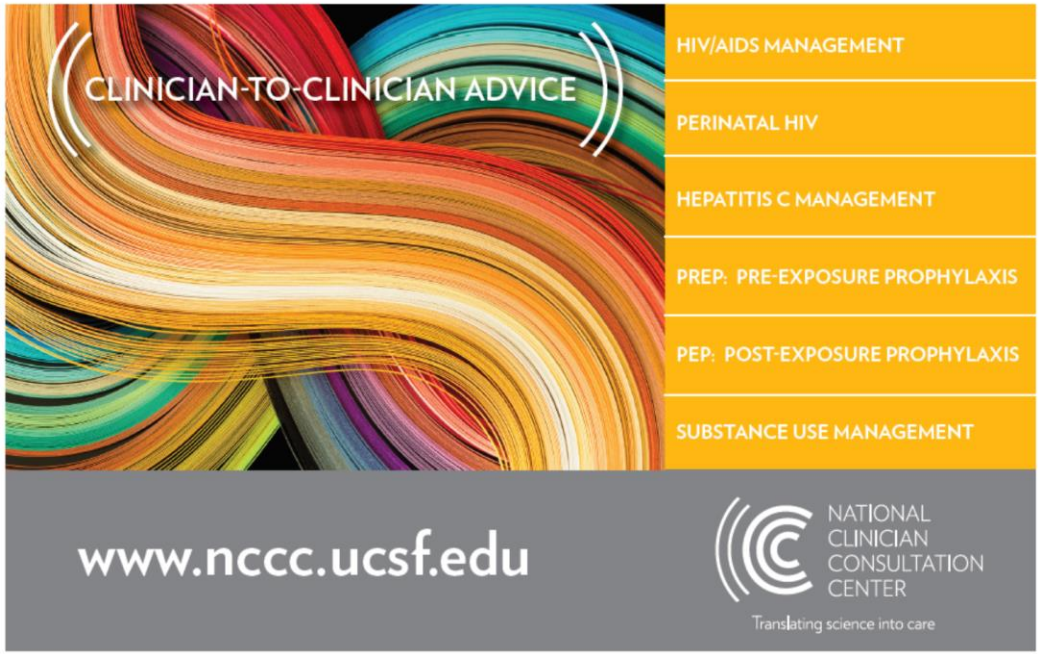
HCV Guidance: Recommendations for Testing, Managing, and Treating Hepatitis C

Last Updated: November 6, 2019
www.hcvguidelines.org

AASLD
AMERICAN ASSOCIATION FOR THE STUDY OF LIVER DISEASES

IDSA
Infectious Diseases Society of America

UCSF National Clinical Consultation Center



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—Ron Goldschmidt, MD, founder and director

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The NCCC, a part of the AIDS Education and Training Centers, is located at the University of California, San Francisco/Zuckerberg San Francisco General Hospital and is funded by the Health Resources and Services Administration and the Centers for Disease Control and Prevention.

COVID-19 Pediatric Considerations
Prenatal Screenings and Assessments (#1)
Screening and Assessment for Neonatal Abstinence Syndrome (#9)
Initiating Pharmacotherapy for Opioid Use Disorder (#2)
Managing NAS (#10)
Managing Pharmacotherapy Over the Course of Pregnancy (#3,4)
Breastfeeding Considerations for Infants at risk for NAS (#11)
Pregnant Patients with Comorbid OUD and Mental Health Disorders (#5)
Infant Discharge Planning (#12)
Addressing Polysubstance Use During Pregnancy (#6)
Early Intervention Strategies and Developmental Assessments (#13)
Planning Prior to Labor and Delivery and Peripartum Pain Control (#7,8)
Maternal Discharge Planning (#15)/ Plans of Safe Care
Adjusting Pharmacotherapy Dose Postpartum (#14)
Trauma-informed Care
Maternal Discharge Planning (#15)/ Plans of Safe Care
Long Acting Reversible Contraception Program
The ARTS Program/Medicaid Policy and Billing
ConnectVirginia HIE
Suitable Developmental Assessments for Opioid Exposed Infants and Children

UVA Project ECHO: Neonatal Abstinence Syndrome

- Fridays 8:00-9:00am
- May-September 2020
- Link to Register: https://connect.VirginiaProjectECHO.org/Series/Registration/272
- Zoom Link for Sessions: https://virginia.zoom.us/j/199108591
- Registered participants will receive calendar invitations, email reminders with Zoom link included, and access to resources uploaded to the series landing page.
- ProjectECHO@UVA.edu